

بسم العظیم الجبار

# 123doc 2012

MRCP part 2

لنا مدنیة سَافَتْ سُنْحِیْها وإنْ دُثِرَتْ  
ولو فی وجهنا وقفتْ دهأةُ الإنسِ و الجانِ





بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

﴿وَمَكَرُوا وَمَكَرَ اللَّهُ وَاللَّهُ خَيْرُ الْمَاكِرِينَ﴾

صدق الله العظيم





## المقدمة

السلام عليكم....

نود ان نشير الى ان هذا العمل تم من قبل فريق يؤمن بان طريق الالف ميل يبدأ بخطوه .....

بعد التوكل على الله قام فريق العمل بالتقصي عن المواقع الطبية التي تحمل اسئلة الزمالة البريطانية في ما يخص الامراض الباطنة وتحديد الجزء الثاني منها (part 2) ....وكانت خلاصة هذا التقصي اربع مواقع متوفرة على النت وهي:

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وبعد العمل لمدة شهور تم بحمده تعالى الانتهاء من ملفات ال (pdf) الخاصة بثلاثة منها و ان شاء الله سوف يتم الانتهاء من الموقع الرابع ([onexamination.com](http://onexamination.com)) في المستقبل القريب.


ان هذا العمل خالص لوجه الله و عسى ان يكون في ميزان حسناتنا وعسى ان يحفظ الله ابائنا وامهاتنا و يحفظنا و يبعد عنهم و عنا بلاء القدر و يديم عليهم وعلينا وافر الصحة و العافية .

نسالكم الدعاء بظهر الغيب.

فريق العمل  
**Angels team**





<p>No.: 1</p> 	<p>No.: 1</p> <p>E</p> <p>Patients most likely to maintain sinus rhythm are those of a younger age, those with no underlying heart disease, those with a normal atrial size, and those with a short duration of atrial fibrillation (atrial fibrillation begets atrial fibrillation).</p>
<p>No.: 2</p> <p>A 68-year-old woman was admitted to hospital with evidence of biventricular cardiac failure. On examination her pulse was 100 beats per minute (sinus rhythm), and her blood pressure was 140/60 mmHg. She had haemorrhages in both fundi. Her condition improved after intravenous diuretics. Investigations revealed :</p> <p>haemoglobin 5.6 g/dl (11.5 ♦ 16.5)  haematocrit 0.19 (0.36 ♦ 0.47)  MCV 118 fl (80 ♦ 96)  MCH 33.0 pg (28 ♦ 32)  white cell count <math>3.4 \times 10^9/L</math> (4 ♦ 11)  platelet count <math>95 \times 10^9/L</math> (150 ♦ 400)</p> <p>What is the next most appropriate step in management :</p> <p>Options</p> <p>A. Blood transfusion  B. Bone marrow aspiration  C. Intramuscular vitamin B12 alone  D. Intramuscular vitamin B12 and oral folic acid together  E. Oral folic acid alone</p>	<p>No.: 2</p> <p>B</p> <p>The clinical picture represents severe megaloblastic anaemia with cardiac failure. The investigations do not mention anything about B12 or Folate assays .</p> <p>So the next step would be to take blood for these assays and a bone marrow aspiration to identify the cause for the anaemia and then to start large doses of intramuscular vitamin B12 and oral folic acid. (ref: OTM)</p> <p>Causes of macrocytosis</p> <ol style="list-style-type: none"> <li><u>Macrocytosis with a megaloblastic bone marrow</u> <ul style="list-style-type: none"> <li>• B12 deficiency</li> <li>• Folate deficiency</li> <li>• Drugs : Methotrexate, Hydroxyurea, Cytosine, Azathioprine</li> </ul> </li> <li><u>Macrocytosis with normoblastic bone marrow</u> <ul style="list-style-type: none"> <li>• Reticulocytosis</li> <li>• Liver disease</li> <li>• Alcohol</li> <li>• Myxoedema</li> <li>• Pregnancy</li> </ul> </li> <li><u>Macrocytosis with haematological disorders</u> <ul style="list-style-type: none"> <li>• Myelodysplasia</li> <li>• Myeloma</li> <li>• Myeloproliferative disorders</li> <li>• Aplastic anaemia</li> </ul> </li> </ol>





<p>No.: 3</p> <p>A 60-year-old man with a past history of controlled hypertension presents with acute onset weakness of his left arm, that resolved over 12 hours. He had suffered two similar episodes over the last three months. Examination reveals a blood pressure of 132/82 mmHg and he is in atrial fibrillation with a ventricular rate of 85 per minute. CT brain scan is normal . What is the most appropriate management :</p> <p>Options</p> <p>A. Amiodarone B. Aspirin C. Digoxin D. Dipyridamole E. Warfarin</p>	<p>No.: 3</p> <p>E</p> <p>This patient has had three transient ischaemic attacks due to atrial fibrillation. The most appropriate therapeutic strategy for this patient would be warfarin. Studies reveal that warfarin would be therapeutically superior than aspirin in such a patient's case.</p>
<p>No.: 4</p> <p>These are the results of a cardiac catheter of a 16-year-old Down's-syndrome patient with recent onset of dyspnoea .</p> <p>O<sub>2</sub>saturation : Pressure - mm Hg Right atrium 69 Right ventricle 70 130/5 Pulmonary artery 71 130/35 Left atrium 99 Left ventricle 85 125/0</p> <p>What is the complete diagnosis?</p> <p>Options</p> <p>A. Ebstein anomaly B. Transposition of great arteries C. Ostium primum atrial septal defect D. Ventricular septal defect with shunt reversal E. Pulmonary atresia</p>	<p>No.: 4</p> <p>D</p> <p>Right-sided pressures are grossly elevated, and there is likely mixing of blood at the ventricular level consistent with a VSD. Increased dyspnoea is likely to be related to shunt reversal, the point at which the right sided pressures equal those on the left, this then causes blood to flow from right to left and central cyanosis develops . Normal childhood values : Right atrial pressure 3-7 mm Hg Left atrial pressure 10-13 mm Hg Right ventricular pressure 25/0 mm Hg Left ventricular pressure 90-120/0 mm Hg Pulmonary artery pressure 25/10 mm Hg Aortic pressure 90-120/50-80 mm Hg Pulmonary diastolic pressure 0-8 mm Hg Pulmonary artery wedge pressure 5-15 mm Hg</p>



No.: 5



Appropriate therapy of this patient may include all except :

**Options**

- A. Surgical removal
- B. Thrombolysis
- C. Catheter disobliteration
- D. Anti-coagulation
- E. Diuresis

No.: 5

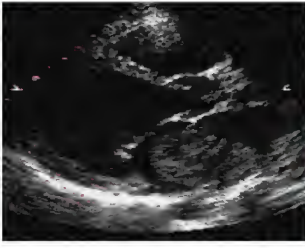
**A**

Occlusion of the right lower pulmonary artery by a pulmonary embolus is demonstrated on this pulmonary angiogram. Surgical removal is not indicated as the embolus is not proximal.





No.: 6



The routine echocardiogram ordered to assess a diastolic murmur is shown. What was the cause of subsequent sudden death :

Options

- A. Hypertrophic cardiomyopathy
- B. Amyloid heart disease
- C. Stroke due to mitral stenosis and AF
- D. Left heart obstruction
- E. Acute myocardial infarction

No.: 6

C

There is a hooked, echogenic appearance to the mitral valve leaflets consistent with possible rheumatic heart disease. The left atrium is enlarged and there appears to be thrombus in it. Part of this has reached the peripheral circulation almost certainly causing a sudden fatal stroke.



No.: 7



This baby was managed in SCBU. What complication is anticipated if mother has Sjogren's syndrome?

Options

- A. Neonatal convulsions
- B. Renal crisis
- C. Hyponatremia
- D. Congenital heart block
- E. Necrotizing enterocolitis

No.: 7

D

Associated with transplacental passage of maternal anti-Ro antibody.





No.: 8



What abnormality is shown in the CT given?

Options

- A. Pulmonary artery aneurysm
- B. Aortic arch aneurysm
- C. Pulmonary trunk embolus
- D. Paraaortic lymphadenopathy
- E. Hilar lymphadenopathy

No.: 8

B

If you see the picture carefully :

- \*Aortic wall is calcified .
- \* Thrombus (doesn't opacify) in wall of aneurysm.



No.: 9



What abnormality is shown in the following picture of heart?

Options

- A. Vertebral artery dissection
- B. Aortic arch aneurysm
- C. Coarctation of aorta
- D. Coeliac axis thrombosis
- E. Left ventricular dilation

No.: 9

C

This is clearly coarctation of the aorta which usually occurs at or just distal to the insertion of the ductus arteriosus. It occurs twice as commonly in men as in women and is also associated with Turner's syndrome.



No.: 10



Which of the following is not a cause of this finding :

Options

- A. Coarctation of Aorta
- B. Aortic thrombosis
- C. SVC Obstruction
- D. Neurofibromatosis
- E. Marfans Syndrome

No.: 10

E

Causes of Inferior Rib Notching include coarctation of the aorta, aortic thrombosis, subclavian obstruction and SVC obstruction. Other causes include arterio-venous malformation. Causes of superior rib notching include connective tissue disease, restrictive lung disease, polio, marfans, osteogenesis imperfecta and progeria.



No.: 11



A 50-year-old woman presents with breathlessness for many years. Her CXR is shown. Which of the following diagnoses is not consistent with these findings :

Options

- A. Hypertrophic cardiomyopathy
- B. Ventricular septal defect
- C. Eisenmenger atrial septal defect
- D. Pericardial Effusion
- E. Ebstein's anomaly

No.: 11

B

The CXR shows enlargement of the cardiac silhouette; the lung fields are relatively oligemic .

Causes of cardiomegaly with pulmonary oligemia include :

Pericardial effusion

Cardiomyopathy

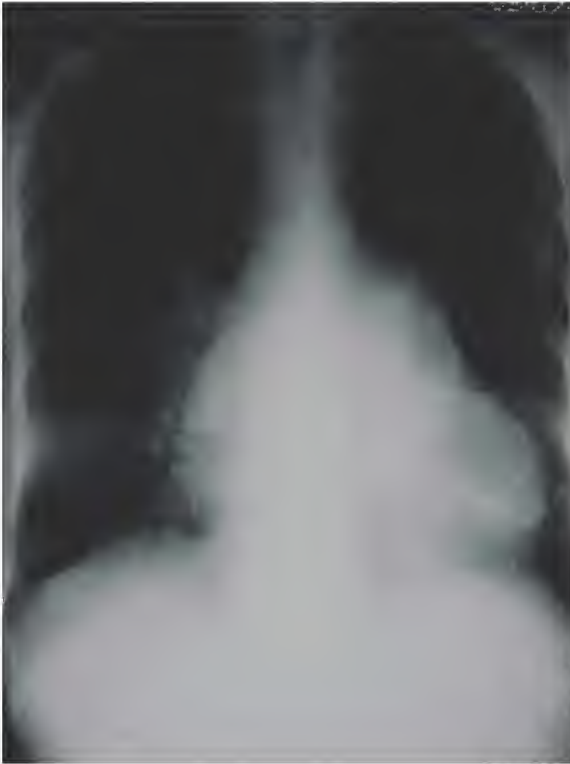
ASD with pulmonary oligemia or Eisenmengers

Ebstein's anomaly: atrialisation of right ventricle (tricuspid valve is low), with TR, Right AV enlargement, Pulmonary Stenosis, Oligemic lungs, small aorta.





No.: 12



-70year-old with short history of shortness of breath, presents to the clinic for the first time. Which feature does not suggest ASD :

Options

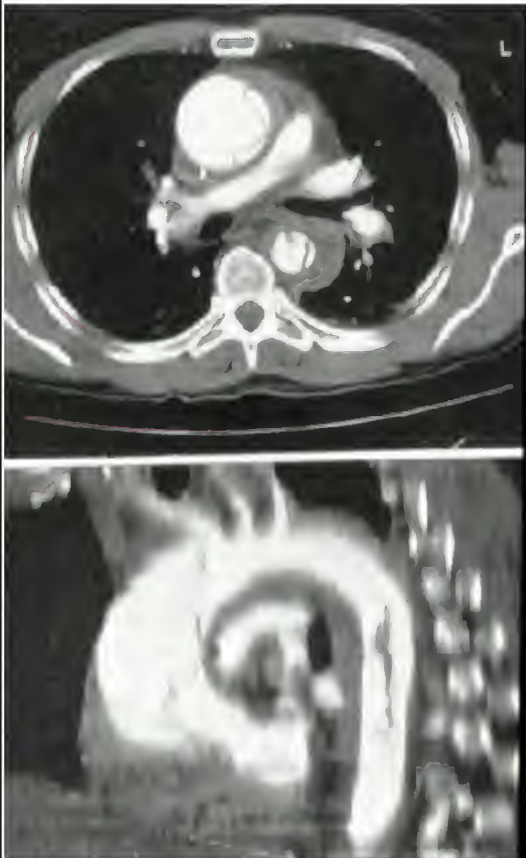
- A. Oligaemia
- B. Pulmonary Artery enlargement
- C. Small aortic arch
- D. Splaying of carina
- E. Cardiomegaly

No.: 12

D

Features of ASD with Eisenmengers include pulmonary hypertension, pulmonary oligoemia and a small aortic arch, with no splaying of the carina (normal left atrial size). You would expect to see left atrial enlargement in mitral valve disease with splaying of the carina, making mitral valve disease a more likely cause here. VSD would present younger and with pulmonary plethora.

No.: 13



What is the diagnosis :

Options

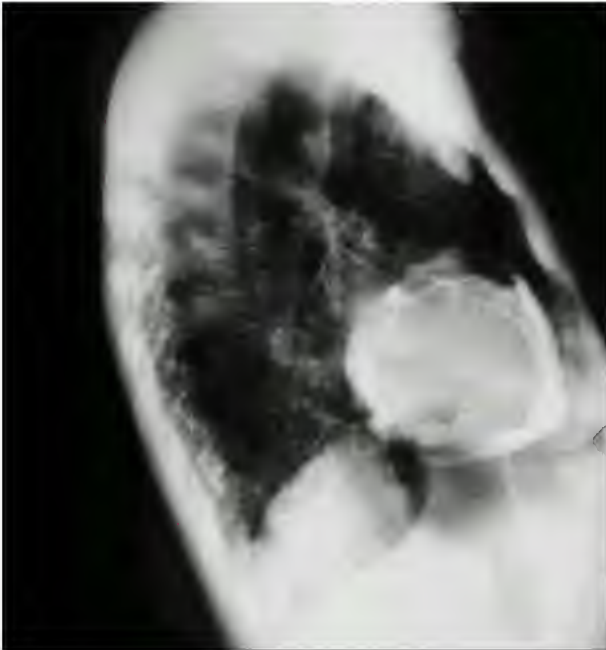
- A. Aortic aneurysm - ascending and descending aorta
- B. Aortic dissection - ascending and descending aorta
- C. Aortic dissection - ascending aorta
- D. Aortic dissection - descending aorta
- E. Coarctation aorta

No.: 13

B

The arch angiogram shows aortic dilatation consistent with a dissected aneurysm. Associations include collagen diseases such as Marfan's and formerly syphilis, but this is much less common now

No.: 14



No.: 14

E

This is pericardial calcification; causes include post pericarditis (TB, rheumatic fever, pyogenic, viral), trauma or surgery. An aneurysm would display calcification within the myocardium.

Which of the following is not a cause?

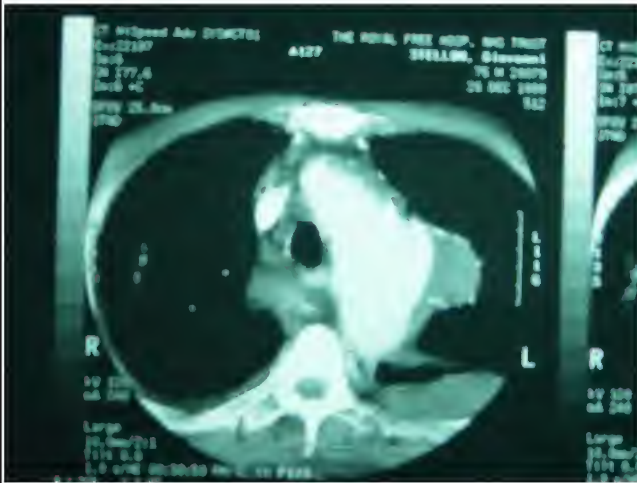
Options

- A. TB
- B. Rheumatic fever
- C. Previous CABG
- D. Previous pericardial adhesion
- E. Myocardial aneurysm





No.: 15



What abnormality is shown :

Options

- A. Pulmonary Artery Aneurysm
- B. Aortic Arch Aneurysm
- C. Pulmonary Trunk embolus
- D. Paraaortic Lymphadenopathy
- E. Hilar Lymphadenopathy

No.: 15

B

There is calcification in the aneurysm wall with some thrombus formation. Accompanied with the increased diameter this is consistent with aortic arch aneurysm



No.: 16



What is the diagnosis :

Options

- A. Fibromuscular hyperplasia right inferior renal artery
- B. Left Renal Artery stenosis
- C. Right renal vein occlusion
- D. Left superior renal vein thrombosis
- E. Left testicular vein thrombosis

No.: 16

B

This is an Magnetic Resonance Angiogram of the area around the origin of the renal arteries. There is a narrowing of the left renal artery, consistent with renal artery stenosis

No.: 17



This is the left ventricular cross-section of a 55-year-old man who collapsed at a restaurant, shortly after complaining of a sudden severe occipital headache .

What is the most likely cause of this pathological appearance?

Options

- A. Pulmonary hypertension
- B. Systemic hypertension
- C. Pure AR ( aortic regurgitation)
- D. MS ( mitral stenosis)
- E. Carcinoid

No.: 17

B

The cross section obviously shows concentric Left Ventricular Hypertrophy which is usually due to systemic hypertension or aortic stenosis. On post mortem, examination of his brain revealed a haemorrhagic stroke, probably related to chronic systemic hypertension.



No.: 18



In the light of the above electrocardiogram, you would expect while examining this patient:

Options

- A. Opening Snap
- B. Pansystolic Murmur as a complication of Acute MI
- C. Pericardial rub
- D. Cannon waves in the JVP
- E. Mid systolic click

No.: 18

C

This ECG shows the typical early electrocardiographic changes of acute pericarditis. These comprise ST-segment elevation, which, unlike the pattern of ST-segment elevation in acute myocardial infarction, is concave upwards and usually present in all leads (except aVr and V1). The T waves are usually upright in the leads with ST-segment elevation. Several days later the ST segment returns to the baseline and T waves flatten. This change usually occurs prior to inversion of the T waves, followed by normalization.

The pericardial friction rub is the common physical finding of acute pericarditis. Detection of the rub is aided by listening with the stethoscope diaphragm applied firmly to the chest at the lower left sternal border with the patient sitting up and leaning forward. It may change in quality from one examination to the next.

Opening Snap is instead a feature of MS (mitral stenosis), Pansystolic Murmur is a feature of MR (mitral regurgitation), Mid systolic click is a feature of MVP (mitral valve prolapse), Cannon waves in the JVP can be found in the case of VT or CHB (complete heart block).



No.: 19



The following is associated with this type of cardiac mass :

Options

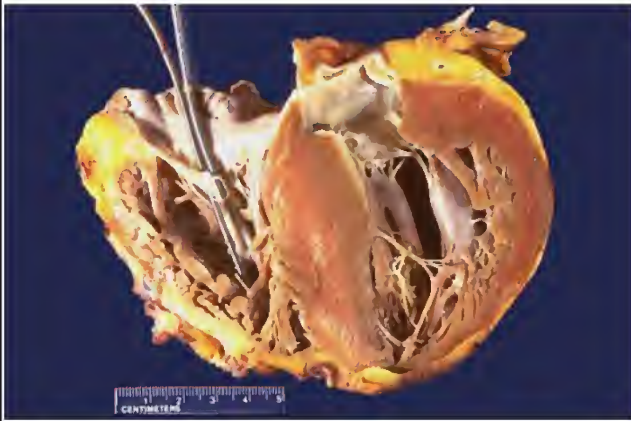
- A. FUO (fever of unknown origin)
- B. It is usually malignant
- C. LVH
- D. Are only seen in the LA
- E. More comonly seen in the RA than in the LA

No.: 19

A

This is an atrial myxoma, 3/4 of which are seen in the LA (usually attached to the interatrial septum). It is the most common primary cardiac tumour. Echocardiography is the best method to establish a diagnosis, and symptoms may mimic Mitral Stenosis.

No.: 20



Only one of the following is correct regarding the condition illustrated in the picture:

Options

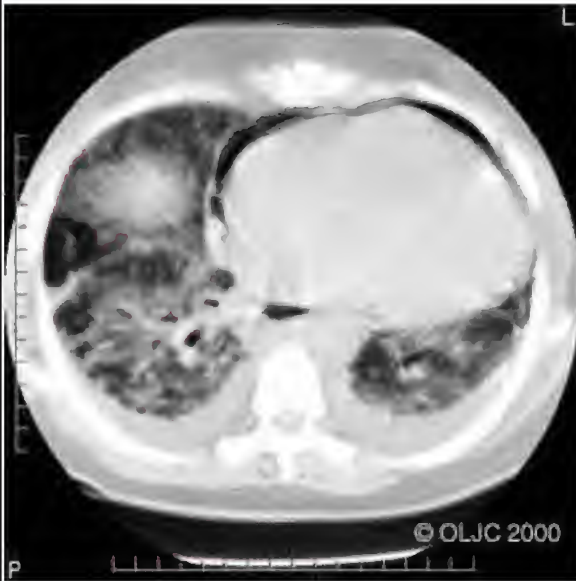
- A. Mimics aortic regurgitation .
- B. Digoxin is usually helpful .
- C. The hypertrophy could be confined to the apex .
- D. May be due to thiamine deficiency .
- E. It is mainly systolic dysfunction.

No.: 20

C

The picture shows the typical macroscopic aspect of a heart of a patient with hypertrophic cardiomyopathy (HCM), characterized by a marked increase in myocardial mass with small ventricular cavity. HCM most commonly involves the septum but in 5% could involve the apex only. Sometime HCM is associated with a dynamic pressure gradient in the subaortic area (hypertrophic obstructive cardiomyopathy). The auscultatory finding in HCM with an outflow gradient is a systolic murmur that typically is harsh and crescendo-decrescendo in configuration; it usually commences well after S1 and is best heard between the apex and the left sternal border. It often radiates well to the lower sternal border, the axillae, and base of the heart but not into the neck vessels. This murmur must be differentiated from aortic stenosis auscultation findings. HCM is mainly characterised by diastolic dysfunction, while systolic function is usually preserved, therefore digoxin is not indicated. Progression of HCM to left ventricular dilatation and dysfunction occurs in 10 to 15 percent of patients. It is more likely to occur in patients with marked septal hypertrophy and generally is associated with a poor prognosis. Thiamine deficiency is associated with cardiac dilatation.

No.: 21



What is demonstrated by this CT scan?

Options

- A. Pericardial effusion
- B. Pneumopericardium
- C. Pleural effusion & B
- D. Pleural effusion & A
- E. All of the above

No.: 21

C

This CT demonstrates pleural effusion with additional evidence of pneumopericardium.

No.: 22



By using warfarin in this 75-year-old patient with this ECG you expect to decrease the incidence of stroke :

Options

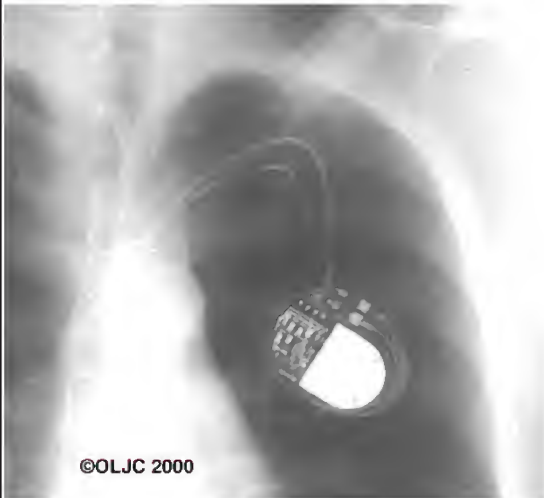
- A. From 5% to 1.5% per year
- B. From 5% to 3% per year
- C. From 10% to 5% per year
- D. Warfarin does not help at this age
- E. Warfarin is as effective as aspirin in this patient with fewer side-effects

No.: 22

A

Recent large prospective randomized trials demonstrated that warfarin reduces the risk of stroke in AF from between 3 and 8% per year down to between 0.5 and 2% per year.

No.: 23



This CXR shows one of the rare complications of Permanent Pacemaker:

Options

- A. Lead fracture
- B. Pneumothorax
- C. Pacemaker syndrome
- D. Loss of capture
- E. Pleural thickening

No.: 23

A

There is a clear break in one of the pacing leads, replacement would certainly be necessary.







No.: 24

A 60-year-old man was admitted to hospital complaining of central chest pain. His electrocardiogram showed anterior ST segment elevation and he was transferred to the cardiac care unit where he was thrombolysed with t-PA .

On day 5 after his admission he became acutely unwell. He complained of a sudden onset of severe central chest pain and dyspnoea .

On examination he looked unwell; he was sweating and pale .

Cardiac catheterisation was performed .

The pressure and oxygen saturation data obtained are shown below :

Anatomical site	Oxygen saturation (%)	Pressure (mmHg)
Superior vena cava	70	-
Right atrium (mean)	69	7
Right ventricle	87	50/12
Pulmonary capillary wedge pressure	-	16
Left ventricle	96	90/12
Aorta	97	100/50

What is the most likely cause for his deterioration?

Options

- A. Cardiac tamponade
- B. Cardiogenic shock
- C. Dissecting aortic aneurysm
- D. Papillary muscle rupture
- E. Ventricular septal defect

No.: 24

The initial history is clearly that of an acute MI. On the basis of the history, the rapid deterioration could be due to any of the conditions listed .

Myocardial rupture, septal perforation and papillary muscle rupture may occur as a consequence of acute MI - usually within the first week. Myocardial rupture presents as a catastrophic collapse; chest compressions are ineffective and the condition is almost invariably fatal. VSD and papillary rupture are difficult to distinguish clinically. The diagnosis is established by demonstration of a left to right shunt, as in this case .

The catheter data show a step-up in the oxygen saturation between the RA and RV. This can only occur when there is an abnormal connection between these two chambers i.e. via a VSD. The raised right ventricular pressures support this finding.



No.: 25

A 55-year-old woman is found to have ++ glycosuria and had a maternal history of Type II diabetes mellitus. She is a smoker of 20 cigarettes per day .

Examination reveals no specific abnormalities apart from a BMI of 30. Blood pressure was 132/88 mmHg .

Investigations reveal :

Serum creatinine 80  $\mu$ mol /L (60 - 110)

Plasma glucose (fasting) 11.3 mmol/L (3.0 - 6.0)

Total serum cholesterol 5.5 mmol/L

HDL cholesterol 1.4 mmol/L (>1.55)

What is most likely to improve her life expectancy?

Options

- A. Metformin 500 mg bd
- B. Ramipril 10 mg daily
- C. Simvastatin 10 mg daily
- D. Stopping smoking
- E. Weight loss to achieve a BMI of 25

No.: 25

D

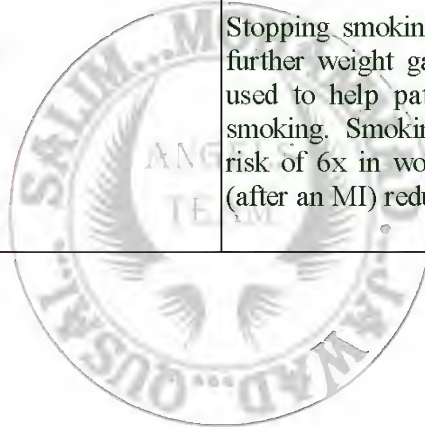
Stopping smoking .

She is diabetic and obese as defined by her BMI of 30. She is most prone to risk of cardiovascular disease with evidence suggesting that diabetics have at least a two to four fold increased cardiovascular mortality .

In terms of improving life expectancy, of the risk factors mentioned, (diabetes, mild dyslipidaemia, hypertension), stopping smoking would without question be expected to have the greatest benefit .

Tight glycaemic control unfortunately does little to reduce cardiovascular risk (UKPDS) and statin therapy would be expected to have a small but significant impact in this patient according to primary prevention studies (WOSCOPS) .

Stopping smoking is the first priority, even if it causes further weight gain. Drugs such as Sibutramine can be used to help patients limit weight gain when stopping smoking. Smoking is associated with a cardiovascular risk of 6x in women and 3x in men. Stopping smoking (after an MI) reduces the risk of recurrent MI by 50%.





No.: 26

A 54-year-old woman presents to hospital with a 2-year history of increasing exertional dyspnoea .  
Her echocardiogram is abnormal and cardiac catheterisation is performed .

The results are shown below :

Anatomical site    Oxygen saturation (%)    Pressure (mmHg)

Superior vena cava 70 -

Right atrium (mean) 69 7

Right ventricle 70 50/10

Pulmonary capillary wedge pressure - 30

Left ventricle 96 90/10

Aorta 97 100/50

Which one of the following cardiac pathologies would be the most likely cause of her dyspnoea?

Options

- A. Aortic incompetence
- B. Hypertrophic cardiomyopathy
- C. Mitral stenosis
- D. Primary pulmonary hypertension
- E. Pulmonary stenosis

No.: 26

C

The commonest cause of MS is rheumatic valve disease; rare causes include connective tissue disease and metastatic neoplasia (causing marantic endocarditis) .

The catheter data show a gradient across the mitral valve (LA pressure - LV end diastolic pressure); it is usual to use the PCWP as a surrogate for LA pressure. In this case the gradient is  $30 - 10 = 20$  mmHg .

There is also evidence of right ventricular hypertrophy, with markedly elevated RV pressures due to secondary pulmonary hypertension .

The severity of mitral stenosis can be graded :

Severity of mitral stenosis	Severity valve area (cm <sup>2</sup> )	Gradient (mmHg)
Mild	1.6-2.0	5
Moderate	1.0-1.5	5-10
Severe	1.0	10

No.: 27



A 62-year-old man attends the Accident & Emergency Unit because of progressively worsening dyspnoea. He also gives a history of dry cough and a low-grade fever. He has a past history of hypertension and was hospitalised six months previously when he suffered an acute inferior myocardial infarction that was complicated by left ventricular failure. His chest X-ray is shown.

His lung function tests show :

FEV1 90%

FVC 70%

KCO 50%

Which of the following agents is most likely to have caused these findings?

Options

- A. Amiodarone
- B. Ramipril
- C. Quinidine
- D. Propranolol
- E. Verapamil

No.: 27

A

The side effects of Amiodarone are well recognised and include pneumonitis and pulmonary fibrosis. Pneumonitis and lung fibrosis present with a progressively-worsening dry cough, pleuritic chest pain, dyspnoea and malaise.

Other side-effects of Amiodarone include neutropaenia, hepatitis, phototoxicity and slate-grey skin discolouration, hypo- and hyperthyroidism, arrhythmias, corneal deposits, peripheral neuropathy and myopathy.





No.: 28

A 40-year-old male presents to the outpatient clinic for a routine check up. He has a three-year history of Type 2 diabetes mellitus and is currently diet controlled. He takes no other medication .

Examination reveals that he is obese with a BMI of 34 kg/m<sup>2</sup>, his blood pressure is 180/90 mmHg and he has a pulse of 80 beats per minute regular. A check of his joint management record shows that the previous week his blood pressure was 160/90 mmHg and 170/95 mmHg .

Investigations show :

HbA1C 7.5% (normal range 5-6.8%)

Cholesterol 5.2 mmol/l

Urine albumin concentration 220 micromol/d

Which of the following drugs has not been associated with reducing cardiac events in a patient with such a presentation?

Options

- A. Angiotensin converting enzyme inhibitor
- B. Aspirin
- C. Insulin
- D. Metformin
- E. Gemfibrosal

No.: 28

C

This man is an obese type 2 diabetic (T2DM), with fair diabetic control, a raised cholesterol, hypertension, and microalbuminuria. Thus we are looking at primary prevention of a cardiac event in this patient. He is at high risk of a cardiovascular event .

WOSCOPS and AFCAPS/TEXCAPS provide evidence for primary prevention of a cardiac event with statin and fibrate treatment. In the HOPE study, ramipril has been shown to lower cardiovascular risk in patients with two CV risk factors as well as in diabetics, independently of BP lowering. Aspirin has been shown to lower risk of CV events in high-risk individuals with diabetes in the HOT study to name one of many. Evidence from UKPDS 34 shows that treatment of overweight, diabetic patients with Metformin lowers the relative risk of myocardial infarction (MI) by 40%, with respect to treatment with sulphonylureas or insulin. There is no evidence that commencing T2Ds on insulin lowers the risk of MI, even if the HbA1c improves. However, DIGAMI showed risk reduction of sliding scale insulin in patients with a MI (secondary prevention).



No.: 29

A 45-year-old man presents to his general practitioner with a persistent headache and recurrent epistaxis. A murmur is noted and he is referred for a cardiological opinion .

The findings on cardiac catheterisation are summarised below :

Anatomical site	Oxygen saturation (%)	Pressure (mmHg)
Right atrium	74	6
Right ventricle	75	23/6
Pulmonary artery	74	24/10
Pulmonary capillary wedge pressure	-	7
Left ventricle	98	195/7
Femoral artery	96	155/84

What is the most likely diagnosis?

Options

A. Aortic stenosis

B. Coarctation of the aorta

C. Hypertrophic obstructive cardiomyopathy

D. Pulmonary stenosis

E. Ventricular septal defect

No.: 29

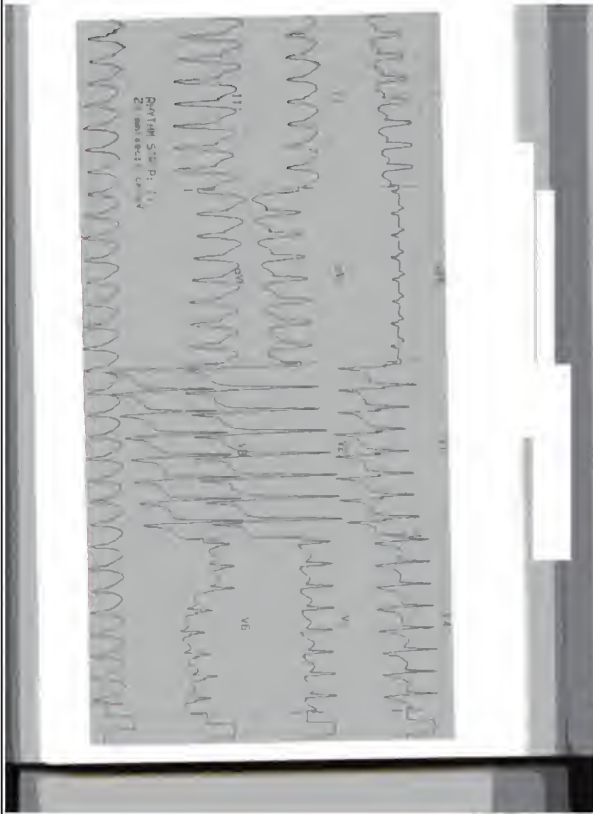
**B**

There is a steep systolic gradient between the left ventricle and the femoral artery; the gradient is calculated as  $195 - 155 = 40$  mmHg .

Most patients with coarctation of the aorta are asymptomatic. Headache, recurrent epistaxis, and claudication of the calf muscles are among the few symptoms .

A midsystolic murmur may be heard anteriorly or posteriorly in the chest. Chest X-ray frequently shows rib notching, caused by dilatation of collaterals proximal to the stenosis. Coarctation may be complicated by hypertension, development of cerebral aneurysms, left ventricular failure and bacterial endocarditis. The primary treatment of coarctation is usually surgical; re-stenoses following previous surgery may be amenable to treatment by percutaneous balloon dilatation.

No.: 30



A 63-year-old man presents with dyspnoea .  
 On history the patient reports suffering from an anterior myocardial infarction, eight years ago .  
 On examination, he is tachycardic and looks mildly unwell. His blood pressure is 110/60 and his oxygen saturation is 97%. The case notes document 'abnormal ECG', although no previous ECGs are available .  
 Two large bore intravenous (IV) lines are inserted and an urgent ECG is performed. What is the next step in management?

Options

- A. IV adenosine
- B. IV Sotalol
- C. Amiodarone
- D. IV verapamil
- E. IV magnesium

No.: 30

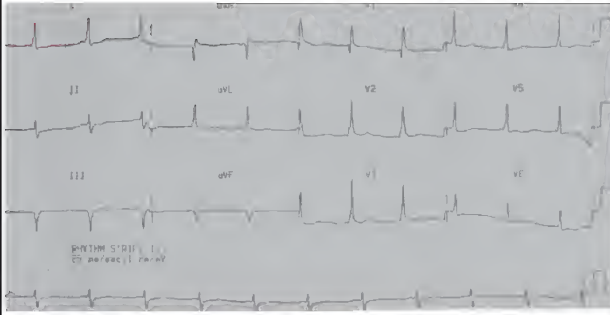
C

The patient has in wide QRS complex tachycardia of uncertain origin, adenosine (or Lignocaine) are no longer recommended. Procainamide or amiodarone are the treatment options, but attempts should be made to define the origin of tachycardia .

In the treatment of monomorphic ventricular tachycardia, lidocaine is no longer recommended; procainamide or amiodarone are the recommended therapies .

In polymorphic ventricular tachycardia with a normal QT interval, beta-blockers are recommended. In shock-refractory ventricular fibrillation, lignocaine, and magnesium are ineffective; intravenous amiodarone should be the treatment of choice.

No.: 31



A 34-year-old patient with Down's syndrome is admitted to the Emergency department with several episodes of chest pain over the last week. The longest bout of chest pain lasted for an hour on the day of presentation .

On CVS examination, he is haemodynamically stable, and no abnormalities are found. An ECG is performed .

What is the most likely diagnosis?

Options

- A. Old inferior infarction
- B. Old posterior infarction
- C. Acute posterior infarction
- D. Pre-excitation
- E. Lyme's disease

No.: 31

D

The most likely diagnosis is pre-excitation/Wolff-Parkinson-White syndrome .

The ECG shows ventricular pre-excitation with short PR interval, delta waves, and wide QRS complex. The WPW pattern may be confused with other ECG diagnoses, i.e. pseudo-infarction pattern in leads III and AVF .

The configuration in lead V1 may also be confused with RBBB. In otherwise healthy persons, the incidence of symptomatic tachyarrhythmias has been estimated to be approximately 12% .

Lyme's disease caused by tick bite, can result in 1st degree heart block (PR>200msecs).







No.: 32

A 77-year-old man presents to the hospital with severe breathlessness. There is a past history of myocardial infarction, hypertension and benign prostatic hypertrophy .

An echocardiogram, 12 months prior, has shown moderate to severe systolic dysfunction. The patient is usually able to walk 300-400 yards before getting shortness of breath (SOB) .

His current medications consist of :

Lisinopril 5mg daily

Aspirin 150mg

Furosemide 40mg

Amlodipine 5mg

He has been gradually getting SOB for the last 3 weeks, and for the last week has been sleeping on 4 pillows. He denies any chest discomfort or pre-syncope but does describe bilateral swelling of ankles .

On examination, blood pressure is 100/60, pulse rate is 120, JVP +9cm. On chest examination, inspiratory crepitations are heard in mid zones .

He is treated acutely, and improves over the next 24-48 hours. What medication change would have the greatest prognostic impact?

Options

A. Increase dose of Lisinopril

B. Add Candesartan

C. Add Spironolactone

D. Add Digoxin

E. Add Carvedilol

No.: 32

This person is in NYHA class III for heart failure symptoms. All of the above measures (except Digoxin) have been shown to impact either on prognosis (ACEI [SAVE/SOLVED], B blockers, Spironolactone) and/or hospital readmission (A2 blocker in addition to ACEI - recent CHARM study) in this setting .

The ATLAS study (in fact with Lisinopril) showed clearly that clinical outcomes (but not mortality) were better with maximal dose of ACEI (20mg for Lisinopril) .

Metoprolol, Carvedilol and Bisoprolol have been shown to give the maximum improvement in prognosis in this setting .

Although Spironolactone does improve prognosis in this setting (RALES study), the absolute incremental benefit would be less than that with B blockers (approx. 20% vs. 5% in background of ACEI).



<p>No.: 33</p> <p>A 50-year-old man presents with 2 episodes of (paroxysmal) atrial fibrillation over the last 6 months. He has a history of hypertension treated with B blockers. He has read on the internet that this condition can result in strokes, and he asks you if anything can be done to reduce his risk. He has no contraindications to anticoagulation. How will you respond?</p> <p>Options</p> <p>A. Do a 24-hr Holter monitoring to further define how many asymptomatic AF episodes he is having prior to deciding the thromboprophylaxis</p> <p>B. Reassure him that his annual CVA risk is extremely low (less than 1/1000 per yr) and that no anticoagulation is needed</p> <p>C. Prescribe warfarin aiming for INR of 2.0-3.0</p> <p>D. Prescribe aspirin</p> <p>E. Prescribe warfarin (aiming for INR 1.5-2.0) and aspirin</p>	<p>No.: 33</p> <p>C</p> <p>The patient has evidence of structural heart disease (paroxysmal AF) and hence would need anticoagulation for thromboprophylaxis. Aspirin would reduce the risk, but not as much as Warfarin (about 30% of Warfarin). Aspirin plus Warfarin increases the risk of bleeding without increasing the benefit.</p>
<p>No.: 34</p> <p>A 20-year-old man is referred for family screening after his father died from a sudden collapse. A post-mortem finds 'an enlarged heart but no evidence of recent infarction.'</p> <p>On further history, there have been 2 other sudden cardiac deaths in the paternal side of the family. The patient himself is totally asymptomatic and his past history is unremarkable.</p> <p>CVS examination is normal. Echocardiography shows normal LV cavity dimensions, an inter-ventricular septal thickness of 1.5cm (NR &lt;1.1cm) and posterior wall thickness of 0.8cm (NR&lt;0.9cm). LV systolic function is normal.</p> <p>Pick one further test that would be important in risk-stratifying this patient.</p> <p>Options</p> <p>A. ECG</p> <p>B. PET imaging</p> <p>C. Dobutamine stress echocardiography</p> <p>D. Cardiac MRI with gadolinium contrast</p> <p>E. Exercise stress test</p>	<p>No.: 34</p> <p>E</p> <p>The patient's history is strongly suggestive of hypertrophic cardiomyopathy. Independent recognised risk factors for sudden cardiac death (SCD) in these patients are:</p> <ul style="list-style-type: none"> <li>-Marked LV wall thickness (&gt;30mm)</li> <li>-Family history of SCD or syncope</li> <li>-NSVT on ambulatory ECG monitoring</li> <li>-History of syncope/VT</li> <li>-Abnormal BP response to exercise.</li> </ul> <p>Dobutamine stress echocardiography would not risk-stratify the patient and would be relatively contraindicated, particularly if the patient had a resting outflow tract gradient. There is emerging evidence that PET-detected, impaired coronary flow reserve might predict poor outcome, but the data is preliminary.</p> <p>Cardiac MRI? Delayed Enhancement MRI might indicate areas of myocardial fibrosis in some of these patients, and there is preliminary evidence that this might be a marker of a more severe disease; however, there is no long term data as yet for this to be reliably used for prognostication.</p>



<p>No.: 35</p> <p>Which of the following patients would be most likely to maintain sinus rhythm following successful electrical cardioversion from atrial fibrillation?</p> <p>Options</p> <p>A. A 40-year-old lady with severe mitral regurgitation          B. A 44-year-old man with 'lone' atrial fibrillation          C. A 78-year-old man who was detected to be in AF following presentation with an embolic stroke          D. A 30-year-old man with atrial septal defect          E. A 21-year-old woman noted to be in hyperthyroidism</p>	<p>No.: 35</p> <p><b>B</b></p> <p>Patients most likely to maintain sinus rhythm are those of a younger age, those with no underlying heart disease, those with a normal atrial size and those with a short duration of atrial fibrillation (atrial fibrillation begets atrial fibrillation).</p>
<p>No.: 36</p> <p>A 68-year-old woman was admitted to hospital with evidence of biventricular cardiac failure. On examination, her pulse rate was 100 beats per minute (sinus rhythm), and her blood pressure was 140/60 mmHg. She had haemorrhages in both fundi. Her condition improved after intravenous diuretics .</p> <p>Investigations revealed :</p> <p>Haemoglobin 7.6 g/dl (11.5 - 16.5)          Haematocrit 0.22 (0.36 - 0.47)          MCV 115 fl (80 - 96)          MCH 33.0 pg (28 - 32)          White cell count 3.4 X 10<sup>9</sup>/L (4 - 11)          Platelet count 95 X 10<sup>9</sup>/L (150 - 400)</p> <p>What is the next most appropriate step in management?</p> <p>Options</p> <p>A. Blood transfusion          B. Bone marrow aspiration          C. Intramuscular vitamin B12 alone          D. Take blood for folate and B12 estimation          E. Oral folic acid alone</p>	<p>No.: 36</p> <p><b>D</b></p> <p>The clinical picture represents severe megaloblastic anaemia with cardiac failure. The investigations do not mention anything about B12 or Folate assays. So the next step would be to take blood for these assays and a bone marrow aspiration to identify the cause for the anaemia and then to start large doses of intramuscular vitamin B12 and oral folic acid.</p>



No.: 37

A 15-year-old boy underwent cardiac catheterisation for investigation of exercise-induced collapse .

Anatomical Site: Oxygen Saturation (%): Pressure (mmHg) End Systolic/End Diastolic :  
 Superior vena cava 74 -  
 Inferior vena cava 72 -  
 Right Atrium 73 5  
 Right Ventricle 74 20/4  
 Pulmonary Artery 74 20/5  
 Pulmonary capillary wedge pressure - 15  
 Left Ventricle 98 210/15  
 Aorta 99 125/75

What is the most likely diagnosis?

Options

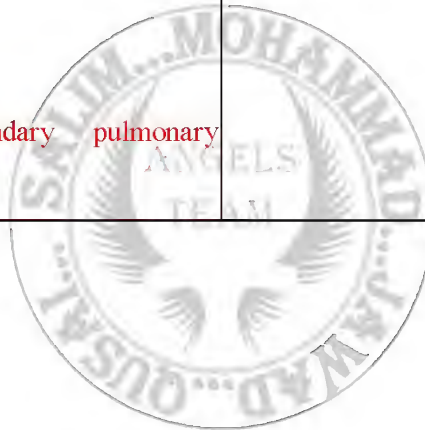
- A. Aortic incompetence
- B. Cardiac tamponade
- C. Fallot's tetralogy
- D. Hypertrophic cardiomyopathy
- E. Mitral stenosis with secondary pulmonary hypertension

No.: 37

D

Left ventricular pressures are high with a steep drop-off between the LV and aortic systolic pressures .

Fallot's tetralogy has RVOT and VSD as features, and the pressure reading don't support this - no step-up in gradient in RV(VSD) and no gradient between the pulmonary artery and RV. AI (severe enough to cause collapse) would have wide pulse pressure in the LV and elevated RV and wedge pressures.







No.: 38

A 17-year-old woman consulted her general practitioner because she had become slightly breathless on exertion over the preceding six months .

Examination was unremarkable apart from a soft systolic murmur at the left sternal edge. An echocardiogram was requested and she was subsequently referred for a cardiology opinion .

The data obtained from cardiac catheterisation are shown below :

Anatomical Site	Pressure(mmHg)	Oxygen Saturation(%)
Superior vena cava	74	-
Inferior vena cava	70	-
Right Atrium (high)	72	-
Right Atrium (mid)	72	-
Right Atrium (low)	80	-
Right Ventricle	79 44/12	-
Pulmonary Artery	81 42/15	-
Pulmonary capillary wedge pressure	- 9	-
Left Ventricle	96 125/9	-
Aorta	97 120/70	-

What is the most likely diagnosis?

Options

- A. Primary pulmonary hypertension
- B. Septum primum atrial septal defect
- C. Septum secundum atrial septal defect
- D. Ventricular septal defect
- E. Ventricular septal defect with Eisenmenger's syndrome

No.: 38

B

The oxygen saturation in the right atrium (RA) and superior vena cava (SVC) should be the same. However, there is a step-up in oxygen saturation at the level of the low RA. This can only result from the addition of oxygenated blood to the deoxygenated blood in the right heart circulation, i.e. an abnormal connection between the right and left sides of the heart .

Since this is occurring in the atria, this must be due to an atrial septal defect (ASD). The location of the step-up is suggestive of a primum defect since these lesions occur low down in the A-V septum, lying immediately above the atrioventricular valves. These lesions can affect the function of the anterior leaflet of the mitral valve, causing mitral regurgitation. Right ventricular pressures are high; this is more likely to occur with primum ASDs.





No.: 39

A 78-year-old female is referred to the outpatient department with hypertension. She has generally been very well, but has recently seen the gynaecologist for stress incontinence at which point hypertension was noted .

Examination reveals a well patient with a BMI of 25, a pulse of 80 beats per minute, a blood pressure of 188/78 mmHg and normal heart sounds. Fundal examination reveals silver wiring .

Which of the following class of drugs would be the most appropriate to treat this patient's hypertension?

Options

- A. ACE inhibitor
- B. Alpha-blockers
- C. Beta-blocker
- D. Calcium antagonist
- E. Thiazide diuretic

No.: 39

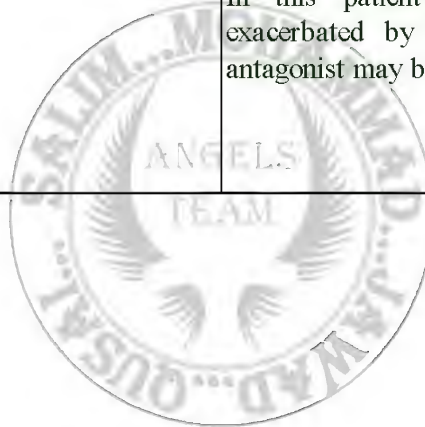
D

Any of these drugs have been proven to lower BP in various clinical settings.

Thiazide diuretics and beta-blockers have the largest amount of trial data in terms of reduction of clinical events. However, this elderly female has isolated systolic hypertension (systolic greater than 160 and diastolic below 90 mmHg).

Evidence from studies such as Systolic Hypertension in the Elderly Program and Syst-Eur indicate that both thiazides and calcium antagonists are the drugs of choice in terms of reducing morbidity and mortality in this patient group.

In this patient's case the incontinence may be exacerbated by the diuretic therapy and a calcium antagonist may be more appropriate.





No.: 40

A 28-year-old man was admitted to casualty. He had been receiving weekly manipulative therapy for upper back pain .

On the day of presentation, he developed pain in his neck, vertigo, blurred vision and diplopia, 1 hour after his last treatment session. He had difficulty in balancing himself with a tendency to fall to the right and incoordination of right upper and lower limbs. There was accompanying facial asymmetry, decreased hearing on the right side, difficulty in swallowing, and associated weakness of right side of body .

There was no past medical history of note and he was a non-smoker. On examination, a right-sided Horner's syndrome was noted. There was reduced tone and power in upper and lower limbs on the right. Deep tendon reflexes were brisk on the right side and plantar response was extensor. Sensory examination revealed a crossed hemianaesthesia with involvement of the face on the right side .

What is the most likely diagnosis?

Options

- A. Posterior circulation TIA
- B. Cavernous sinus thrombosis
- C. Posterior communicating artery aneurysm
- D. Posterior inferior cerebellar artery infarction
- E. Vertebral artery dissection

No.: 40

E

Vertebral artery dissection is a well-recognised cause of stroke in patients <45 years and is associated with a 10% mortality rate in the acute phase .

Death may occur due to intracranial dissection, brainstem infarction or subarachnoid haemorrhage. Common causes include structural defects of the arterial wall, connective tissue disease, trauma (e.g. road traffic accident, sporting injury), manipulation of the neck .

The typical clinical presentation is with severe occipital headache followed by focal neurological signs attributable to ischaemia of brainstem or cerebellum .

It is important to note that cervical spine manipulation is not a common cause of vertebral artery trauma. The actual injury statistics are minimal when the manipulation is skillfully performed by those who specialise in manipulation (i.e. chiropractors and osteopaths) .

Most problems occur when people who have no former training in manipulation attempt to treat a patient using manipulation!

No.: 41



This patient presented to his GP with loss of vision over one week. A diagnosis of central retinal vein occlusion is made. Which of the following conditions would not predispose to this condition?

Options

- A. Hypertension
- B. Cytomegalovirus infection
- C. Graves' disease
- D. Chronic myeloid leukaemia
- E. Vasculitis

No.: 41

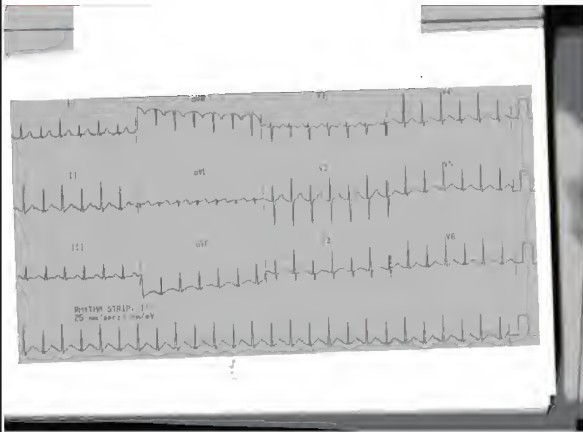
B

Patients usually present with painless loss of vision and are found to have diffuse retinal haemorrhages in all four quadrants of the retina as well as dilated, tortuous veins. Cotton-wool spots, disc oedema, optociliary shunt vessels and neovessels might also be present. Multiple aetiologies should be considered including: hypertension, glaucoma, optic disc oedema, hypercoagulable states, vasculitis, drug-induced, and retrobulbar compression by tumours or Graves' ophthalmopathy.





No.: 42



A 26-year-old woman presents with palpitations. She has been otherwise well and is not on any regular medications .

An ECG is taken .

What is the most likely diagnosis?

Options

- A. Pericardial tamponade
- B. Atrial fibrillation
- C. Atrial tachycardia
- D. Sinus tachycardia
- E. Ventricular tachycardia

No.: 42

C

The ECG shows atrial tachycardia with electrical alternans (EA; alternating heights of QRS complexes). This finding is highly suggestive that the arrhythmia uses an atrio- ventricular bypass tract. The presence of electrical alternans (EA) is very helpful in distinguishing the rhythm in this tracing as an SVT rather than simply sinus tachycardia. EA may also be seen in pericardial tamponade, but the exam findings do not suppose this diagnosis.



No.: 43



A 72-year-old man presented to hospital with acute severe dyspnoea and suffered a cardiac arrest from which he could not be resuscitated. He had been well until 2 days previously. A post-mortem examination revealed the following findings .

What is the least likely causative organism?

Options

- A. Coagulase-negative Staphylococcus
- B. Candida
- C. Group A Streptococcus
- D. Staphylococcus aureus
- E. Viridans group Streptococcus

No.: 43

E

There is complete destruction of the aortic valve, with vegetations attached to its remnants. Viridans Streptococci usually cause a subacute endocarditis; all other agents can cause this picture although Staph. aureus is the most likely. Staphylococcus aureus endocarditis is an aggressive disease frequently associated with valve destruction and abscess formation. Coagulase-negative Staphylococcus does not typically infect native valves unless there is an indwelling line; Group A Streptococci typically cause skin infection, though may cause endocarditis.

No.: 44

A 54-year-old woman presents to hospital with a 2-year history of increasing exertional dyspnoea . Her echocardiogram is abnormal and cardiac catheterisation is performed. The results are shown below :

Anatomical site	Oxygen saturation (%)	Pressure (mmHg)
Right atrium (mean)	74	6
Right ventricle	73	60/7
Pulmonary artery	73	55/44
Pulmonary capillary wedge pressure	-	26
Left ventricle	97	110/6
Aorta	98	120/80

What is the diagnosis?

Options

- A. Aortic incompetence
- B. Hypertrophic cardiomyopathy
- C. Mitral stenosis
- D. Primary pulmonary hypertension
- E. Pulmonary stenosis

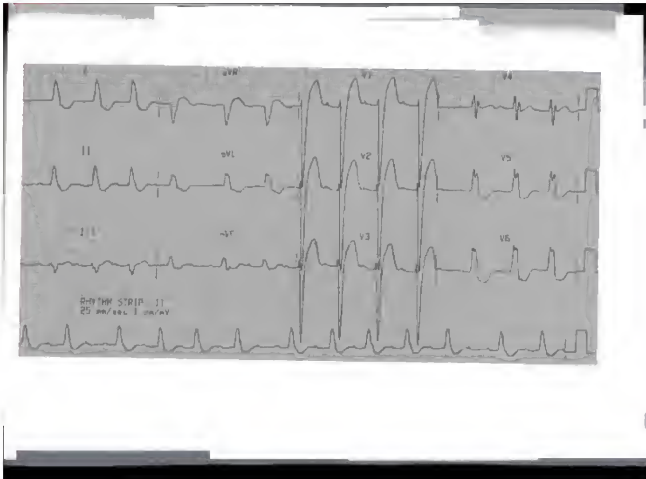
No.: 44

C

The commonest cause of MS is rheumatic valve disease; rare causes include connective tissue disease and metastatic neoplasia (causing marantic endocarditis). The catheter data show a gradient across the mitral valve (LA pressure - LV end diastolic pressure); it is usual to use the PCWP as a surrogate for LA pressure. In this case the gradient is  $26 - 6 = 20$  mmHg. There is also evidence of right ventricular hypertrophy, with markedly elevated RV pressures due to secondary pulmonary hypertension. The severity of mitral stenosis can be graded :

Severity of mitral stenosis	Severity valve area (cm <sup>2</sup> )	Gradient (mmHg)
Mild	1.6-2.0	5
Moderate	1.0-1.5	5-10
Severe	1.0	10

No.: 45



A 65-year-old woman taking Digoxin for congestive heart failure presents with palpitations. An ECG is taken.

What is the diagnosis?

Options

- A. Atrial fibrillation
- B. Atrial flutter with variable block
- C. Sinus tachycardia
- D. Ventricular tachycardia
- E. Atrial tachycardia with variable conduction

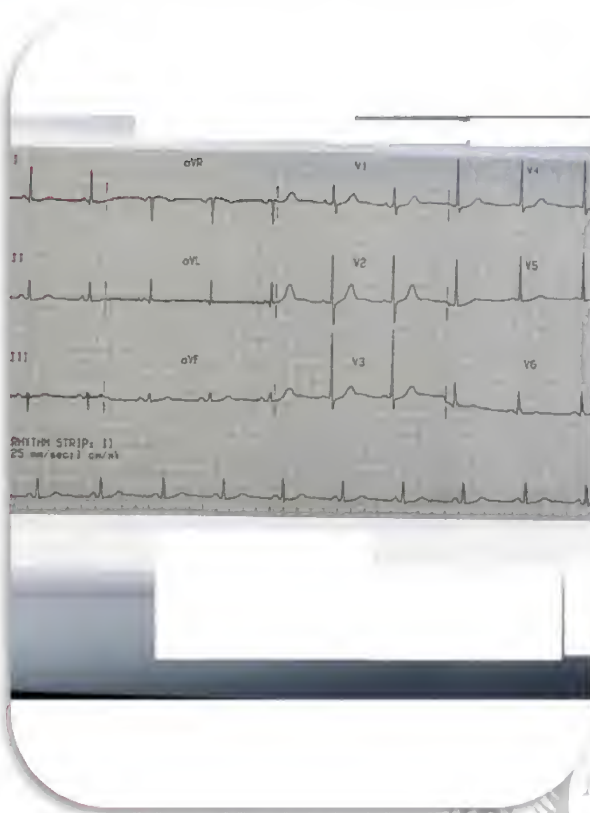
No.: 45

E

The diagnosis of atrial tachycardia with  $\diamond$ block $\diamond$  would have been very difficult in this patient had there not been a period of increased block which uncovered the P waves buried in the QRS complex during 2:1 AV conduction. One could have early mistaken this rhythm for sinus with 2nd degree AV block where there is gradual prolongation in the PR interval of the conducted beats until a P wave fails to conduct to the ventricles (Wenkebach). AV conduction ratio of 2:1 is a physiological property of the AV node at atrial rates approaching 200 bpm. First degree AV block should not be diagnosed in this example because of the presence of higher degrees of block. This combination of conduction abnormalities is often seen in Digoxin toxicity.



No.: 46



A 55-year-old man had the following ECG on routine screening. What is the diagnosis?

Options

- A. Normal ECG
- B. Old anterior infarct
- C. Posterior wall MI
- D. Right ventricular hypertrophy (RVH)
- E. Pre-excitation

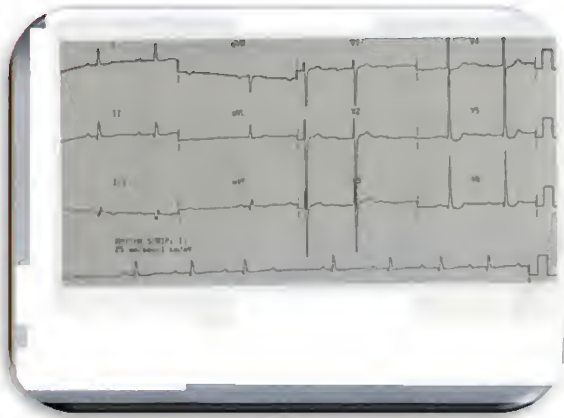
No.: 46

C

The abnormalities in this ECG includes R wave greater than S wave in Leads V1 and V2. There is slight ST depression in Leads II, aVF, and V2-V5. An upright T wave in Lead V1 can also be seen in RVH, however the subtle changes in the inferior wall leads in this ECG, supports the diagnosis of posterior wall infarct. RVH often demonstrates concomitant right atrial enlargement i.e. P pulmonale, which is absent in this patient.



No.: 47



A 66-year-old man in the CCU has the following ECG.  
What does it show?

Options

- A. 1st Degree AV Block
- B. Atrial flutter
- C. 2nd Degree AV block/Mobitz type II
- D. 2nd Degree AV block/Mobitz type I (Wenkebach)
- E. Complete heart block

No.: 47

D

There is prolongation of the PR interval with eventual failure to conduct one P wave to the ventricles. This is diagnostic of Mobitz type I / 2nd degree AV block. Note that the PR interval following the blocked P wave is prolonged, although first degree AV block is generally not diagnosed as part of a sequence involving 2nd degree AV block.



No.: 48



The ECG below has all of the following characteristics except one:

Options

- A. Sinus rhythm with complete AV block
- B. Left posterior fascicular block
- C. Accelerated AV junctional rhythm
- D. Left axis deviation
- E. AV dissociation

No.: 48

**B**

There is no constant relationship between the P wave and the QRS complex, hence AV dissociation. An accelerated AV junctional rhythm becomes the dominant pacemaker. The AV junction is not simply an escape focus as a normal intrinsic rate of the AV junction is slower than the current rate of 74 bpm. Hence this is an accelerated rhythm. Despite this relatively rapid junctional rhythm, several of the sinus beats would be expected to be conducted to the ventricles. Therefore complete AV block is present. Left anterior fascicular block is present with left axis deviation.

No.: 49



All of the following could predispose to this ECG abnormality except:

Options

- A. Amiodarone
- B. Quinidine
- C. Hypokalaemia
- D. Digoxin
- E. Renal failure

No.: 49

**D**

A large number of drugs have been implicated in causing long QT interval and Torsade-de-pointes ventricular tachycardia, including class 1A (quinidine, procainamide, TCA) and 111 drugs (sotalol and amiodarone). Digoxin causes a shortened QT interval. Hypocalcaemia, hypokalaemia and hypomagnesaemia prolong the QTc.



No.: 50

A 69-year-old man with past history of atrial fibrillation is reviewed at medical outpatient clinic complaining of tiredness. He takes amiodarone, aspirin, atenolol and pravastatin daily. Recent 24-hr ECG shows sinus rhythm throughout with occasional ventricular ectopics .

Investigations reveal the following results :

Full blood count Normal

U+Es Normal

Free T4 33.1 nmol/l (NR 9-22)

TSH less than 0.02 mU/l (NR 0.4 - 4)

What is the best management strategy for this patient?

Options

- A. Continue amiodarone and start carbimazole
- B. Stop amiodarone and start carbimazole
- C. Stop amiodarone, start carbimazole and flecainide
- D. Stop amiodarone and start steroids
- E. Stop amiodarone only

No.: 50

**B**  
This patient has probable amiodarone-induced hyperthyroidism. The amiodarone was used to maintain sinus rhythm in this patient who was admitted with ischaemic heart disease and atrial fibrillation/flutter that spontaneously settled. Therefore, the amiodarone should be stopped and if necessary other antiarrhythmics could be used to maintain sinus rhythm, such as sotalol. However, flecainide would be contraindicated in this patient with ischaemic heart disease. Amiodarone has a very long plasma half-life and stopping this therapy alone would not be sufficient in a patient with a tendency to AF and ischaemic heart disease. Thus to ensure adequate control following withdrawal of amiodarone, the patient should also be commenced on carbimazole.

No.: 51

A patient presents to heart failure clinic for routine follow-up. He has known ischaemic heart disease (IHD) and chronic atrial fibrillation (AF). He describes nosebleeds for the last 3 days. His medications consist of atenolol, warfarin, ramipril and amlodipine. His alcohol consumption is 30 standard units per week. His GP had recently prescribed oral amoxicillin for a chest infection. An alternative is considered to warfarin for long-term anticoagulation in this patient .

Which of the following statements about Ximelagatran is false?

Options

- A. It is a direct thrombin inhibitor
- B. It can only be taken orally
- C. It is cleared hepatically
- D. Large clinical trials in atrial fibrillation have proven its non-inferiority to warfarin
- E. Renal impairment is the most concerning adverse effect

No.: 51

**E**  
In AF, oral anti-thrombotic agents that are more efficacious than aspirin and that are easier to use than adjusted-dose warfarin are needed. Recently two large, randomised trials testing the novel oral anti-coagulant, Ximelagatran (comparing it to warfarin), has found it to be equivalent in efficacy without the need for careful monitoring. Main SE is that of raised liver function tests.



No.: 52



Which of the following is NOT a cause of this finding?

Options

- A. Coarctation of aorta
- B. Aortic thrombosis
- C. SVC obstruction
- D. Neurofibromatosis
- E. Marfan's Syndrome

No.: 52

E

Causes of inferior rib notching as seen in the X-ray :

- \*Arterial - coarctation, aortic thrombosis, subclavian obstruction, any cause of pulmonary oligemia
- \*Venous - SVC obstruction
- \*Arteriovenous - Pulmonary AVM, Chest wall AVM
- \*Neurogenic - NF (ribbon ribs)

Causes of superior rib notching :

- \*CTD - RA, SLE, Scleroderma, Sjogrens
- \*Metabolic - HPTH
- \* Misc - NF, Restrictive lung disease, Polio, Marfans, Osteogenesis Imperfecta, Progeria



No.: 53



Which of the following is not a cause?

Options

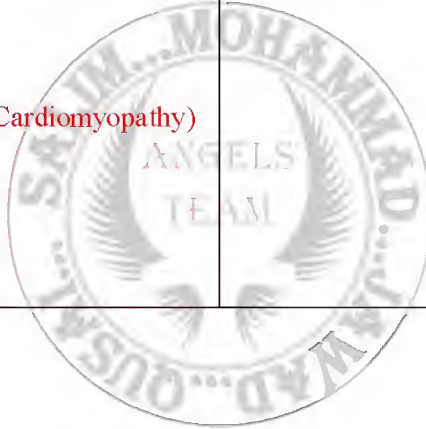
- A. HOCM (Hypertrophic Obstructive Cardiomyopathy)
- B. VSD (Ventricular septal defect)
- C. ASD (Atrial septal defect)
- D. Pericardial Effusion
- E. Ebstein's anomaly

No.: 53

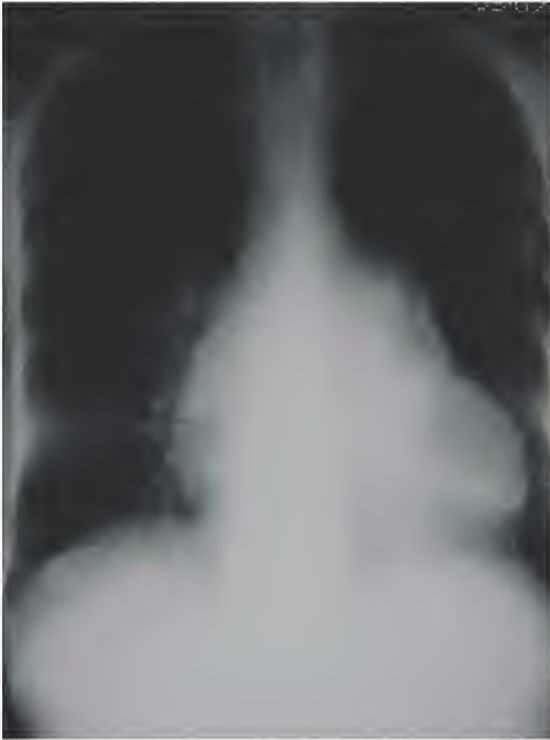
B

Causes of cardiomegaly with oligemia :

- \*Pericardial effusion
- \*Cardiomyopathy
- \*ASD with pulmonary oligemia or Eisenmengers
- \* Ebstein's anomaly: atrialisation of right ventricle (tricuspid valve is low), with TR (Tricuspid regurgitation), Right AV enlargement, Pulmonary Stenosis, Oligemic lungs, small aorta



No.: 54



70year-old with short history of shortness of breath as first presentation. Which feature does not suggest ASD (Atrial septal defect)?

Options

- A. Oligaemia
- B. Pulmonary artery enlargement
- C. Small aortic arch
- D. Splaying of carina
- E. Cardiomegaly

No.: 54

D

Features of ASD with Eisenmengers :

- \*Pulmonary hypertension
- \*Pulmonary oligoemia
- \*Small aortic arch
- \*Carina not splayed, i.e. Left atrium not enlarged (cf. mitral valve disease)

VSD would present younger and with pulmonary plethora.

No.: 55



Which of the following features are not seen on this radiograph?

Options

- A. Splayed carina
- B. Small aortic arch
- C. Plethora
- D. Cardiomegaly
- E. Large left atrium

No.: 55

B

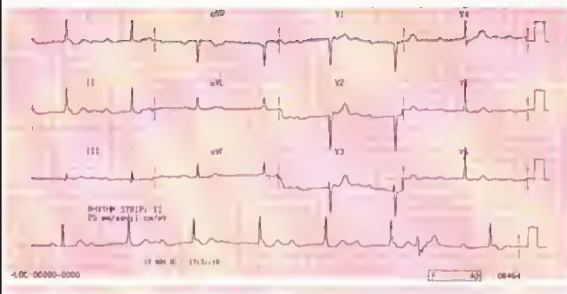
Aortic arch is normal .

Other features are typical of mitral valve disease with left ventricular failure and large left atrium.





No.: 56



This 60-year-old male patient is seen in routine out-patient clinic. He is currently totally asymptomatic but for a background history of hypertension and congestive heart failure. He is on bisoprolol 5 mg, amlodipine 5 mg, ramipril 5 mg and aspirin 75 mg/d. What is the most appropriate management:

## Options

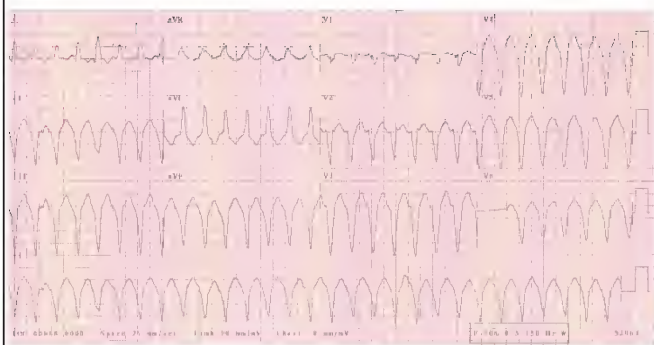
- A. Stop bisoprolol and do a 24-hour tape .
- B. Stop bisoprolol and amlodipine and do a 24-hour tape .
- C. Stop bisoprolol and implant permanent pacemaker .
- D. Implant permanent pacemaker and continue same therapy .
- E. Implant a temporary pacemaker before implanting a permanent system.

No.: 56

D

The trick on the electrocardiogram (ECG) is to look at the rhythm strip at the bottom. It clearly shows atrioventricular dissociation typical for complete heart block. There is a narrow complex escape rhythm @40 bpm. While the beta-blocker therapy could rightly be implicated for chronotropic disturbances, it is much more likely to cause sinus bradycardia and first-degree heart block. Complete heart block would imply an advanced degree of damage to the underlying conduction system and needs treatment in the form of a permanent pacemaker. There have been a number of studies that have shown the benefits of beta-blocker therapy in heart failure, and so bisoprolol therapy should be continued in this patient once the pacemaker has been implanted. There is no need for inserting a temporary pacemaker as the patient is totally asymptomatic and the escape rhythm has a good rate.

No.: 57



This 63-year-old man presents to the A&E with palpitations and giddiness. He has no significant past medical history. His BP is 100/60 mmHg. What is the best treatment?

Options

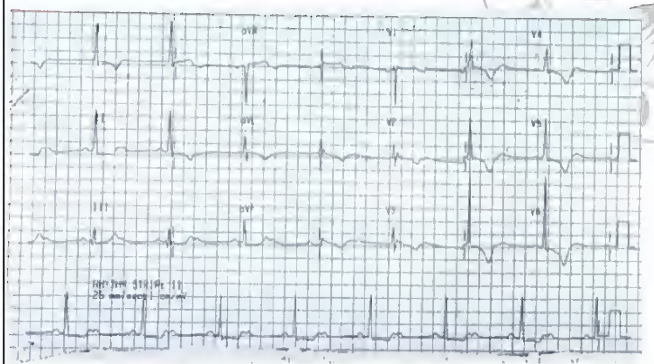
- A. I.V Adenosine .
- B. Synchronized Cardioversion .
- C. Overdrive pacing .
- D. Magnesium .
- E. Intravenous Amiodarone.

No.: 57

E

This is clearly VT. There is evidence of AV dissociation and isolated P waves can be seen between the QRS complexes. As the arrhythmia is relatively well tolerated, treatment with IV Amiodarone is appropriate. If he were to develop haemodynamic collapse, cardioversion would become the treatment of choice.

No.: 58



This 60-year-old hypertensive man presents with exertional breathlessness. Based on his ECG, what is the most likely cause of his symptoms?

Options

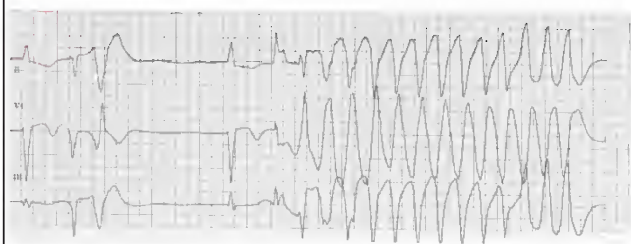
- A. Complete Heart Block .
- B. Silent Coronary Ischemia /Angina equivalent .
- C. LV diastolic dysfunction .
- D. Combination of second degree heart block and diastolic dysfunction .
- E. Old silent MI with LV dysfunction.

No.: 58

D

The rhythm strip shows second degree 2:1 AV block. In 2:1 AV block, it is difficult to distinguish between Mobitz Type I AV Block (associated with gradual PR prolongation before a missed QRS and associated with an often benign and reversible problem with the His bundle conduction) and Mobitz Type II block (sudden dropped beats without preceding PR prolongation associated with serious and permanent disease of the His Purkinje system). In this case, the QRS morphology suggests LV hypertrophy with repolarization abnormality (strain). LVH is associated with diastolic dysfunction and the ventricular filling is highly dependent upon atrial contraction ("atrial kick"). With all AV conduction disturbances, this atrial kick is out of sync with the ventricular filling phase, and this worsens the diastolic dysfunction.

No.: 59



This 24-year-old lady with syncope and normal physical examination had the following ECG during her exercise test. What is NOT likely to be a useful future line of investigation/management?

Options

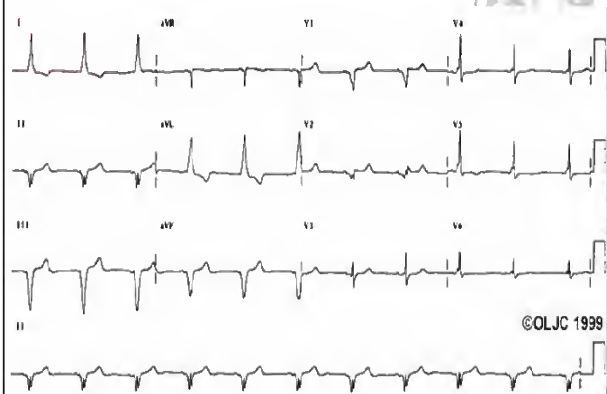
- A. Family screening .
- B. Echocardiography .
- C. Genetic analysis .
- D. ICD implantation .
- E. Beta Blocker therapy.

No.: 59

B

The ECG shows Torsade de Pointes. On careful examination, it can be seen that the second of the two sinus beats (in the middle of the rhythm strip tracing) has a prolonged QT interval. A ventricular extrasystole on this T wave precipitates the arrhythmia. Long QT syndrome (LQTS) is often familial, and hence family screening and genetic studies may be useful. In particular, genetic analysis can differentiate between at least 4 types of LQTS, all having different prognoses and clinical features. The treatment of choice for this lady is implantation of an ICD. Beta-blocker therapy is also helpful in some cases, esp LQTS type I. As LQTS is a disorder of ion channels and is not associated with structural abnormalities, echocardiography is not useful.

No.: 60



This 20-year-old with palpitations and drop attacks was diagnosed with an anxiety disorder by the GP and started on Amitriptyline. What is the most appropriate treatment?

Options

- A. Substitute Amitriptyline with Fluoxetine .
- B. Flecainide .
- C. Amiodarone .
- D. Ablation .
- E. Reassurance.

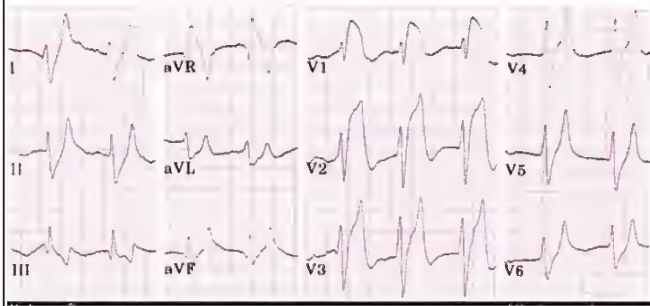
No.: 60

D

The ECG shows WPW syndrome. The patient complains of palpitations suggestive of paroxysmal SVT, but worryingly also complains of drop attacks that suggest pre-excited AF with very rapid ventricular rates. The treatment of choice is RF ablation of the accessory pathway in the context of an EP study.



No.: 61



An 80-year-old man was brought to the A&E in a semi-conscious state following a collapse at home. Only sparse clinical history was forthcoming from his elderly wife. He had been feeling non-specifically unwell for the past few days and that he used to visit a "heart specialist" for the past few years. The only medical background at hand was a drug prescription: aspirin 75 mg/d, ramipril 5 mg/d, bisoprolol 5 mg/d, isosorbide mononitrate 30mg/d, spironolactone 25mg/d, gliclazide 80mg b.i.d., metformin 500 mg b.i.d.

GCS 8/15 BP 180/100 PR 80/min. Chest and CVS examination: Unremarkable. No obvious focal neurological deficit.

An urgent BM was performed (5.6), blood sent for ABG analysis and U&Es, and an ECG was performed. Which of the following would be the most appropriate next step in managing this patient?

Options

- A. Urgent thrombolysis .
- B. CT head .
- C. Intravenous calcium gluconate .
- D. Intravenous amiodarone .
- E. Urgent Spiral CT thorax/ VQ scan.

No.: 61

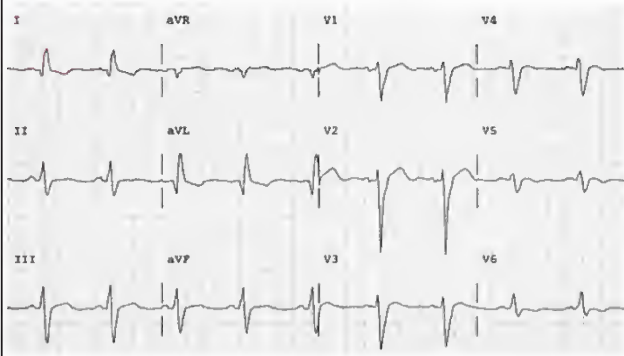
C

The ECG shows absent P waves, peaked T's and localised ST elevation. All these findings are typical for hyperkalaemia. It is likely that this elderly gentleman has survived an episode of cardiac arrest. The hyperkalaemia is likely to be drug induced (ramipril, spironolactone) on a background of diabetes (possible Type IV Renal Tubular Acidosis). He needs urgent treatment for hyperkalaemia as soon as it is confirmed. This will involve calcium gluconate to counteract the cardiac effects of the hyperkalaemia, followed by an infusion of insulin and dextrose.

ELS  
AM



No.: 62



This 62-year-old man presented with VT which was electrically cardioverted to the ECG shown below. There is no significant past medical history except for diet-controlled diabetes. What is the likely aetiology for the VT?

Options

- A. Hypokalaemia .
- B. Hypertrophic Cardiomyopathy .
- C. Long QT syndrome .
- D. Arrhythmogenic Right Ventricular Dysplasia .
- E. Previous Myocardial Infarction.

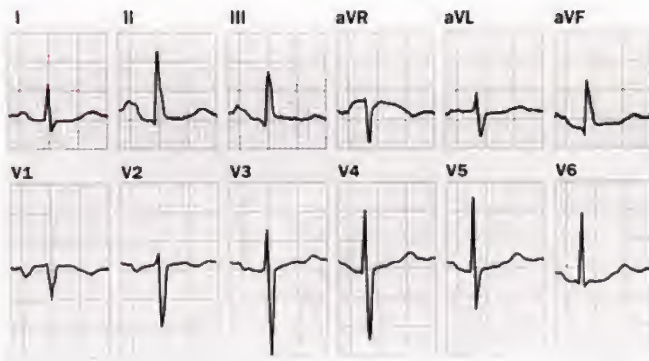
No.: 62

E

The ECG showed poor R wave progression in the precordial leads, well developed Q waves in the lateral leads (I, aVL,) and non-specific intraventricular conduction deficit. This is sufficient evidence for a prior MI, which in any case, is the commonest cause for VT. There are no ECG features for hypokalaemia (flat T waves, prominent U waves, ST depression) or HOCM (findings of LVH with often deep symmetrical T wave inversions in the precordial leads). The QT interval is normal and in any case, most patients with long QT syndrome have normal QRS morphology. The ECG in ARVD often shows anterior T wave inversion (the condition would also be likely to present well before 62 years of age).



No.: 63



This 19-year-old lady presents to the A&E pyrexial and acutely breathless. She is heavily pregnant and has come to Britain from Afghanistan only 4 months back as an asylum seeker. Both her and her partner's English is extremely limited, and she is unable to give a coherent history. On chest examination, she has extensive bilateral crepts and wheeze while the difficult cardiac auscultation does not suggest any obvious abnormality except for a possible wide split-second heart sound. Abdominal examination shows a 32-34 weeks uterus. Her ECG is as shown. What is the likely diagnosis?

Options

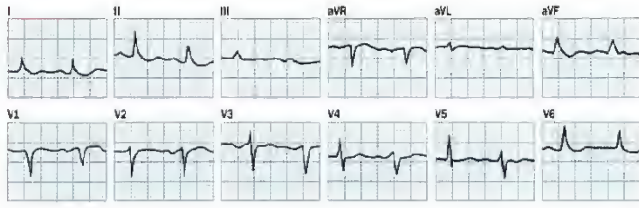
- A. Pulmonary embolism .
- B. Mitral stenosis .
- C. Peri-partum cardiomyopathy .
- D. Atrial septal defect .
- E. Primary Pulmonary Hypertension.

No.: 63

B

This kind of scenario is increasingly frequent in the UK with people coming from areas of the world where rheumatic fever is still prevalent. The clue on the ECG is the P mitrale on Lead II, coupled with the history of pulmonary edema in late pregnancy. The soft diastolic murmur of mitral stenosis is very easy to miss, especially with a noisy chest. Atrial septal defect is associated with right bundle branch block on the ECG in all cases, and is unlikely to present with such a florid pulmonary edema like picture, even after accounting for the chest infection that this lady very likely has. The mention of the possible wide split S2 is a red herring, as it is more likely to be a combination of the S2 followed by a crisp and loud opening snap of mitral stenosis. Primary pulmonary hypertension would also not present with pulmonary edema. Peri-partum cardiomyopathy tends to occur in the post-partum phase, though rare cases have been described as early as in the third trimester. Pulmonary embolism is a worthy contender for the diagnosis esp. in advanced pregnancy; however, the P mitrale is the clincher.

No.: 64



This 68-year-old man woke up one morning acutely breathless. He had vague central chest discomfort which tended to be slightly worse with breathing. He was recovering from a severe viral illness which had laid him down for a week .

Respiratory rate 34, sats 92% on air, BP 90/60, PR 112/min, engorged neck veins. Respiratory exam: Scattered wheeze with decreased bilateral air entry. Cardiovascular examination: Unremarkable .

ABG: pO<sub>2</sub> 9.8, pCO<sub>2</sub> 4.7, pH 7.37, HCO<sub>3</sub> 22.0

What treatment is indicated?

Options

- A. Nebulisers .
- B. Anti-coagulation .
- C. Adenosine .
- D. Pericardiocentesis .
- E. Thrombolysis.

No.: 64

D

The ECG shows the unusual finding of electrical alternans which is pathognomonic of pericardial tamponade. There are several clues to the diagnosis in the clinical presentation too (pericarditic chest pain, engorged neck veins, hypotension, tachycardia). The commonest cause of pericardial effusion is viral, and it is likely that his viral illness has involved the pericardium.





No.: 65



Which of the following is a common association in the condition from which this hypertensive young man suffers?

Options

- A. Bicuspid aortic valve
- B. Circle of Willis aneurysms
- C. A prolapsing mitral valve
- D. Renal failure
- E. Lens prolapse

No.: 66

A 50-year-old gentleman develops syncopal symptoms on exertion. His echocardiogram (ECG) shows left ventricular hypertrophy and his mean transaortic gradient is 50 mmHg .

What is the next step in his management?

Options Choose 1

- A. Aortic valvuloplasty
- B. Aortic valve (AoV) replacement
- C. Close outpatient follow-up with serial echocardiograms
- D. Exercise test looking for dysrhythmias
- E. Observe until he develops symptoms of breathlessness

No.: 65

A

Co-arctation of the thoracic aorta, in the most common position distal to the left subclavian artery, with hypertrophy of the intercostal and internal mammary arteries. Some rib notching on the CXR .

Pic.2. Coarctation of the descending thoracic aorta, distal to the left subclavian artery



No.: 66

B

Only the mean rather than peak aortic gradient is quoted here. A mean gradient of 40 or greater is severe aortic stenosis (AS). If a patient with severe AS on echo develops any exertional dyspnoea, angina or exertional syncope, they require prompt assessment for aortic valve (AoV) replacement. Once symptoms develop the prognosis is poor with 50% mortality at 2 years, if left untreated.





No.: 67

A 62-year-old male attends his general practitioner for annual review of his diet-controlled diabetes. He was diagnosed with diabetes 3 years previously. He is asymptomatic. He has a strong family history of diabetes and cardiovascular disease. His mother, aged 62, was a diabetic and died of an MI. His sister is also a diabetic patient and she is on insulin therapy. Currently, he takes only omeprazole for gastro-oesophageal reflux disease. He is a non-smoker and drinks approximately 10 units of alcohol per week .

On examination, his body reveal, a BMI of 38 kg/m<sup>2</sup>, a pulse of 72 bpm and a blood pressure of 160/94 mmHg. Cardiovascular and respiratory system examinations are normal. On abdominal examination he has central adiposity, but no other abnormalities are noted. All peripheral pulses are palpable. He has reduced vibration sensation in both feet. Fundal examination reveals 2-3 microaneurysms in each eye .

Investigations reveal :

Dipstick urine Glucose ++

Full blood count Normal

Serum sodium 136 mmol/l (133-144)

Serum potassium 4.1 mmol/l (3.5-5)

Serum urea 6.1 mmol/l (3-8)

Serum creatinine 100 micromol/l (50-100)

Total cholesterol 5.5 mmol/l

Triglycerides 2.6 mmol/l (1.2-2.2)

Fasting plasma glucose 11.5 mmol/l

HbA1c 8.3% (<6)

Which of the following treatments are least appropriate to reduce this patient's cardiovascular risk?

Options Choose 1

- A. Aspirin
- B. Simvastatin
- C. Metformin
- D. Orlistat
- E. Ramipril

No.: 67

D

This obese type 2 diabetic has a blood pressure and cholesterol that are too high and need urgent attention. In addition, he would have met the inclusion criteria for the Heart Outcomes Prevention Evaluation (HOPE) study, so ramipril would be a good choice of an anti-hypertensive. He is a sitting duck for a cardiovascular complication, so primary prevention with aspirin is also appropriate. United Kingdom Prospective Diabetes Study (UKPDS) tells us that metformin is appropriate to improve his prognosis. Whilst losing weight with orlistat may help, there is no evidence that its benefits are anywhere near as effective as the other therapies listed.





No.: 68

A 71-year-old man presents with a 3-week history of increasing breathlessness. There is no history of cough or sputum production. He had previously felt unwell for several days, but attributed this to a recent urinary tract infection for which he had received a course of cephalexin from his general practitioner. Despite this, he felt increasingly unwell. He could describe few specific symptoms apart from a feeling of fatigue. He also described episodes of feeling hot, but had not taken his temperature, and so was unsure if he was having fever.

He has a past history of benign prostatic hypertrophy under the care of the local Urology team. Otherwise he is in good health. His medication includes finasteride for prostatic hypertrophy and amlodipine for hypertension.

He lives alone in warden-controlled accommodation. His wife died 2 years ago of breast cancer. His daughter lives locally and visits him twice weekly to help clean his flat.

On examination he looks pale and unwell. His temperature is 37.8 °C. There is a splinter haemorrhage in both the 2nd and 3rd nails of his right hand. There is no palpable lymphadenopathy or finger clubbing. A systolic murmur is audible at the lower left sternal edge. His chest is clear on auscultation.

Investigations show :

Haemoglobin 10.3 g/dL

MCV 90 fL

White cell count 11.3 x 10<sup>9</sup>/L

Platelets 496 x 10<sup>9</sup>/L

ESR (Westergren) 100 mm/1st hour

Serum sodium 136

Serum potassium 3.6

Serum urea 6.5

Serum creatinine 102 µmol/L

C-reactive protein 120 mg/L (NR <6)

Mid stream urine: 2+, protein 1+, negative microscopy and culture.

Two sets of blood cultures show no growth after 24 hours.

The chest radiograph was unremarkable.

His ECG demonstrates normal sinus rhythm.

A transthoracic echocardiogram showed thickened aortic valve leaflets and mild aortic regurgitation. In light of these findings a transoesophageal echocardiogram (TOE) is requested and an appointment has been scheduled in 2 days time.

What is the best course of management in the meantime?

Options Choose 1

A. Continue to monitor closely and repeat blood cultures

B. Repeat mid stream urine

C. Start intravenous benzylpenicillin alone pending further results

D. Start intravenous benzylpenicillin and gentamicin

E. Wait a further 48 hours then take more blood

No.: 68

A

There is obviously a high index of suspicion that this man has infective endocarditis (IE). However, initial blood cultures are negative and the differential diagnosis remains wide. Commencement of antibiotics for presumed IE without knowing the causative organism should only be done, if the patient shows signs of significant complications, such as acute heart failure, embolic event or intra-cardiac abscess. Clearly, if his blood cultures subsequently grow an organism that can cause IE or the TOE demonstrates vegetations/abscess, then anti-microbial therapy should be started immediately.





No.: 69

A 73-year-old gentleman with a history of previous myocardial infarction and longstanding hypertension presents to his general practitioner with a 2-month history of worsening exertional breathlessness. Clinical examination reveals a resting sinus tachycardia and mild ankle oedema .

Which of following medications is most likely to improve his symptoms and prognosis?

Options Choose 1

- A. Amlodipine
- B. Digoxin
- C. Furosemide
- D. Lisinopril
- E. Metolazone

No.: 69

D

It is likely that this man has developed a congestive cardiac failure secondary to his previous myocardial infarction. ACE I is the only therapy that will improve both his symptoms and prognosis. It is no longer necessary to obtain an echo prior to commencing therapy although he clearly merits one at some point.

No.: 70

A 74-year-old gentleman presents with worsening breathlessness. On clinical examination he is found to have a slow rising pulse, grade 2/6 ejection systolic murmur in the aortic area and a quiet 2nd heart sound .

Which factor is the strongest indicator of poor prognosis?

Options Choose 1

- A. Associated aortic regurgitation
- B. Cardiomegaly on chest X-ray
- C. Left ventricular ejection fraction >40%
- D. Severe valvular calcification
- E. Symptomatic left ventricular failure

No.: 70

E

Pulmonary oedema in aortic stenosis is an extremely ominous prognostic sign.



<p>No.: 71</p> <p>A 58-year-old male smoker presents to casualty with a history of central chest pain with mild left arm ache of 5 hours duration. He is cardiovascularly stable and his ECG shows 1 mm ST elevation in leads I and aVL. There is also an evidence of ST-segment depression with symmetrical T-wave inversion in leads III and aVF .</p> <p>What is the most likely diagnosis?</p> <p>Options Choose 1</p> <p>A. Acute pericarditis B. Inferior myocardial infarction C. Lateral myocardial infarction D. Non-ST elevation acute coronary syndrome E. Posterior myocardial infarction</p>	<p>No.: 71</p> <p>C</p> <p>Leads I and aVL are often referred to as the high lateral leads, therefore this has to be a lateral MI. Pericarditis does not cause ST depression.</p>
<p>No.: 72</p> <p>A 56-year-old gentleman with known dilated cardiomyopathy presents with breathlessness on mild exertion. He is in chronic atrial fibrillation with a ventricular rate of 112 beats per minute but there are no clinical signs of pulmonary or peripheral oedema. An echocardiogram three months previously had showed a left ventricular ejection fraction of 20%. His medication includes warfarin, perindopril 8mg, furosemide 60mg, and spironolactone 25 mg. He has a background of asthma since childhood .</p> <p>Which further measure is most likely to improve his symptoms?</p> <p>Options Choose 1</p> <p>A. Addition of digoxin B. Addition of diltiazem C. Addition of low dose beta-blocker D. Addition of oral nitrate E. Increase the dose of furosemide</p>	<p>No.: 72</p> <p>A</p> <p>Digoxin is a helpful way of improving symptoms in chronic heart failure, particularly in patients with AF. If he were not a lifelong asthmatic then low dose beta-blocker therapy would be more appropriate. He is not fluid overloaded so further diuretic is not going to help. There is no evidence for diltiazem in this setting. Oral nitrate may help his symptoms but with suboptimal rate control of his AF digoxin remains the best answer.</p>





No.: 73

A 75-year-old gentleman with a reasonably good exercise capacity had a VVI permanent pacemaker inserted 4 months ago for syncope. He had permanent atrial fibrillation (AF) and a Holter monitor had shown a symptomatic 6 sec pause prior to the pacemaker implant.

He now represents to casualty with marked exertional breathlessness. A recent 24 h tape shows ventricular pacing throughout at a rate of 60 bpm (beats per minute).

What is the next step in his clinical management?

Options Choose 1

- A. Better control of his atrial fibrillation with beta blockers
- B. Cardioversion to sinus rhythm
- C. Chest X-ray looking for pneumothorax
- D. Set pacemaker rate to 70 beats per minute
- E. Upgrade of VVI pacemaker to VVIR pacemaker

No.: 73

This man needs a rate responsive pacemaker. The Holter monitor shows him now to be pacing dependent so he does not need any better rate control of his AF! Cardioversion is futile in permanent AF. A PPM associated pneumothorax would have presented much sooner. Increasing the pacing rate to 70 bpm may help a little but remains profoundly unphysiological.

No.: 74

A 61-year-old gentleman underwent an exercise tolerance test three months after having an inferior myocardial infarction. Following discharge from hospital he made a good recovery and did not have any further episodes of exertional chest pain. His medication on discharge consisted of Atenolol 50mg daily, Aspirin 75mg daily and Simvastatin 40 mg daily.

During the exercise tolerance test, he exercised for 4 mins on the above medications. The test was stopped due to leg fatigue. His heart rate increased to 110 beats per minute and there was 1mm of ST depression in V5 and V6.

What is the next step in his management?

Options Choose 1

- A. Coronary angiography
- B. Myocardial stress perfusion scan
- C. Reassure
- D. Repeat the exercise test after stopping beta blocker therapy for 48 hours
- E. Start on isosorbide mononitrate

No.: 74

He has decreased exercise tolerance with ECG changes at submaximal heart rate on his exercise test. Angiography is therefore indicated at this stage without further testing.



No.: 75

A 68-year-old male is admitted with acute onset dyspnoea. He smokes 20 cigarettes daily and has been aware of increasing exertional dyspnoea over the last 6 months. On examination, he was short of breath at rest and obese with a body mass index (BMI) of 34. His pulse was 115 beats per minute and irregularly irregular, blood pressure 128/84 mm Hg, he had a third heart sound and numerous crackles bibasally on chest examination .

His investigations revealed the following :

Urea 9.1 mmol/l (2-8)  
 Sodium 140 mmol/l (133-144)  
 Potassium 4.2 mmol/l (3.5-5.5)  
 Glucose 10.8 mmol/l (3.5-6)  
 Free T4 23.0 nmol/l (9-21)  
 Thyroid stimulating hormone 0.1 mU/l (0.4-4.5)  
 Electrocardiogram atrial fibrillation  
 Chest X-ray Kerley B lines with interstitial oedema

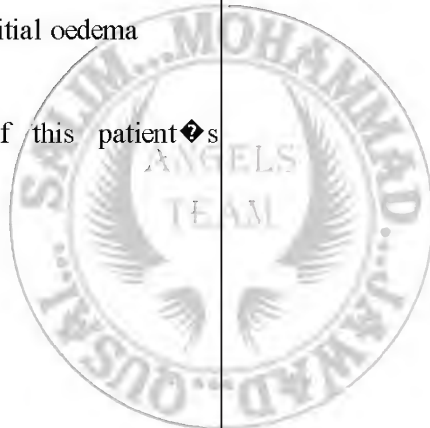
What is the most likely cause of this patient's presentation?

Options

- A. Amyloidosis
- B. Coronary artery disease
- C. Diabetic cardiomyopathy
- D. Hypertensive cardiomyopathy
- E. Thyrotoxicosis

No.: 75

This question is testing your awareness of the frequency of different causes of congestive heart failure. By far and away the commonest cause in the UK is ischaemic heart disease. Rampant thyrotoxicosis may cause congestive heart failure but not with the levels reported here.





No.: 76

A 46-year-old man was brought to hospital after collapsing at home. His wife stated that he had been complaining of a worsening headache for several days. On the evening of admission he had a seizure while watching the television and subsequently became unresponsive. There was no past history of note and he was not taking any regular medication .

On examination his Glasgow Coma Scale score was 3/15. His pulse was 110 beats per minute with blood pressure 240/120 mmHg. Heart sounds were normal and his chest was clear. His abdomen was soft and non-tender. Reflexes were brisk and symmetrical. Fundoscopy showed bilateral papilloedema. A CT scan of his brain was reported as being unremarkable .

What treatment should he receive?

Options

- A. Intravenous furosemide
- B. Intravenous mannitol
- C. Intravenous sodium nitroprusside
- D. Intravenous verapamil
- E. Sublingual nifedipine

No.: 76

**C** This man has hypertensive encephalopathy for which nitroprusside is the most appropriate therapy. It can be easily titrated and rapid drops in BP, which may cause cerebral hypoperfusion and infarction can therefore be avoided.

No.: 77

A 26-year-old man with asthma presented to hospital with an eight-hour history of palpitations and breathlessness at rest. His electrocardiogram showed atrial fibrillation with a ventricular rate of 140 beats per minute and his blood pressure was 126/74 mmHg .

What is the best pharmacological agent to use for cardioversion?

Options Choose 1

- A. Intravenous digoxin
- B. Intravenous esmolol
- C. Intravenous flecainide
- D. Oral sotalol
- E. Intravenous Ibutilide

No.: 77

**C** For patients without evidence of structural or ischaemic heart disease iv flecainide is the drug of choice in the UK (Ibutilide which has been shown in trials to be even more effective is not approved in the UK)



No.: 78

A 52-year-old male who has a five-year history of type 2 diabetes mellitus is admitted with chest pain. His usual drug therapy includes metformin 850 mg bd and he also takes bendroflumethiazide 2.5 mg daily for hypertension. On examination he is obese with a body mass index (BMI) of 36 kg/m, has a pulse of 56 beats per minute (bpm) and a blood pressure of 160/88 mmHg. His ECG shows ST elevation in leads II, III and aVF. He receives streptokinase and his BMs show values between 7 and 10 mmol/l. His plasma glucose concentration obtained from the lab is 8.8 mmol/l.

What is the most appropriate treatment for his glycaemic control?

Options Choose 1

- A. Add gliclazide to metformin
- B. Change metformin to gliclazide
- C. Commence intravenous insulin infusion
- D. Continue current dose of metformin
- E. Increase metformin

No.: 78

The Diabetes Mellitus Insulin Glucose Infusion in Acute Myocardial Infarction (DIGAMI) study showed a clear benefit of peri-infarct iv insulin therapy in diabetics, followed by at least 3 months subcutaneous (sc) insulin. As he is an established diabetic it does not matter that his BMs are not particularly high, he should be commenced on iv insulin even though he would not have been recruited to DIGAMI.

No.: 79

A 55-year-old gentleman with a known history of hypertension, attends outpatient clinic and has a blood pressure of 150/90 mmHg. He has previously reduced his salt intake, but continues to drink six bottles of wine per week. He is on a Atenolol 50 mg od and bendrofluazide 2.5 mg od.

What is the next step in treatment?

Options Choose 1

- A. Commence an ACE inhibitor
- B. Increase bendrofluazide dose to 5 mg
- C. Reassurance
- D. Reduction of alcohol intake
- E. Reduction of salt in cooking ingredients

No.: 79

His BP is only slightly suboptimal, therefore additional lifestyle measures are appropriate, particularly as his alcohol intake is high. Increasing BFZ to 5 mg is unlikely to produce additional anti-hypertensive benefit.





No.: 80

A 34-year-old man presents with a swollen, painful right calf. A doppler ultrasound confirms the presence of a posterior knee occlusive deep vein thrombosis. Two weeks previously a below knee plaster cast had been removed on the right side. This had been in place for 4 weeks following a road traffic accident. He had no other significant past medical or family history .

What is the best management plan for this man?

Options Choose 1

- A. No treatment necessary
- B. Low molecular weight heparin followed by warfarin for 3 months
- C. Low molecular weight heparin followed by warfarin for 6 months
- D. TED support stockings and repeat doppler in 1 week
- E. Warfarin only

No.: 80

**B**  
As there is a clear precipitant cause for his deep vein thrombosis (DVT) with no other history of venous thrombo-embolism, warfarin therapy is required for 3 months only.

No.: 81

A 50-year-old gentleman presents to casualty with chest pain. His electrocardiogram on admission shows an acute inferior myocardial infarction. He develops complete heart block, which is accompanied by hypotension with a blood pressure of 80/50 mmHg . A temporary pacing wire is inserted and his blood pressure returns to 115/75 mmHg. Four hours after insertion of the pacing wire he becomes cold and clammy and his blood pressure falls to 70/40 mmHg. His electrocardiogram shows a paced rhythm of 70 beats per minute .

What is the most likely diagnosis?

Options Choose 1

- A. Aortic dissection
- B. Lead displacement
- C. Pacing wire perforation leading to cardiac tamponade
- D. Reinfarction
- E. Ruptured chordae resulting in severe mitral regurgitation

No.: 81

**C**  
The RV is a thin-walled easily penetrated structure particularly when it has infarcted. The development of hypotension after insertion of a temporary pacing wire (TPW) should always be considered to be tamponade until proven otherwise.



<p>No.: 82</p> <p>A 72-year-old gentleman presents to hospital 24 hours after suffering an episode of chest pain. He has been pain-free and comfortable for at least the last 12 hours. His electrocardiogram shows significant ST elevation in the anterior chest leads with Q waves and loss of R wave progression .</p> <p>What is the next stage in his management?</p> <p>Options Choose 1</p> <p>A. Anticoagulation with warfarin B. Exercise test C. Primary angioplasty D. Thrombolysis E. Transthoracic echocardiogram</p>	<p>No.: 82</p> <p>E</p> <p>This man has completed an anterior infarct. There is no evidence to support acute revascularisation either pharmacologically or percutaneously at this stage. The persistent ST elevation is to be expected in a STEMI that has not been reperfused and does not at this timescale indicate ongoing infarction (especially as the patient has been pain-free for 12 hours). Echocardiography will help guide further therapy by showing his LV function and also check for apical thrombus for which he is at high risk.</p>
<p>No.: 83</p> <p>An otherwise fit and well 76-year-old gentleman presents with syncope and a 7 second sinus pause is demonstrated on Holter monitoring .</p> <p>Which type of permanent pacemaker (PPM) should be implanted?</p> <p>Options Choose 1</p> <p>A. AAI B. Biventricular C. DDDR D. VVI E. VVIR</p>	<p>No.: 83</p> <p>C</p> <p>In pacemaker coding the first letter indicates the chamber(s) paced (Atrial, Ventricular, and Dual), the second letter the chamber(s) sensed (A,V, and D as above), and the third letter the response to a sensed impulse (Inhibition of pacing, Provocation of pacing or both (D) depending on the algorithm). Finally, the presence of R indicates that the pacemaker is equipped with a rate response algorithm .</p> <p>This patient has sinoatrial disease. Strictly speaking he may only require atrial pacing. However, a significant proportion of such patients also go on to develop AV block so most cardiologists would recommend dual chamber pacing with rate response (DDDR) such that the patient is protected against this (unless there is a clear contraindication to dual chamber pacing). Biventricular pacing is used to help resynchronise left ventricular (LV) and right ventricular (RV) contraction in patients with severe LV dysfunction.</p>



<p>No.: 84</p> <p>In a patient with aortic stenosis, what will lead to an overestimation of the severity of the stenosis when assessed by echocardiography?</p> <p>Options Choose 1</p> <p>A. Aortic regurgitation B. Ebstein's anomaly C. Mitral regurgitation D. Mitral stenosis E. Pulmonary hypertension</p>	<p>No.: 84</p> <p>A</p> <p>With AR , volume overload increases the LVOT stroke volume with resultant increases in velocities. This may therefore lead to over-estimation of the trans-aortic gradient.</p>
<p>No.: 85</p> <p>An 76-year-old man is admitted to casualty after collapsing at home. His wife calls an ambulance, but he recovers spontaneously. He had been admitted to hospital with chest pain 6 months previously and was diagnosed as having an acute anterior myocardial infarction. On examination he has a diffuse apex beat and a pulse of 82 beats per minute with a blood pressure of 130/80 mmHg. His electrocardiogram shows ST-segment elevation across the anterior chest leads and frequent ventricular extrasystoles .</p> <p>What is the most likely diagnosis?</p> <p>Options Choose 1</p> <p>A. Acute anterior myocardial infarction B. Heart failure with secondary ventricular tachycardia C. Intermittent complete heart block post-MI D. LV aneurysm formation with secondary ventricular tachycardia E. Sinoatrial node disease</p>	<p>No.: 85</p> <p>D</p> <p>The four causes of ST elevation are acute ST-segment elevation myocardial infarction (STEMI), acute pericarditis, left ventricular (LV) aneurysm and high take-off. Answer D is the best answer overall although all the rest should still be on your differential as you assess such a patient in casualty.</p>



No.: 86

A 56-year-old gentleman is admitted with severe central chest pain. His electrocardiogram (ECG) shows an acute anterior myocardial infarction. He was discharged from hospital 2 days ago following 10-day admission with a bleeding peptic ulcer. His only medication is a proton pump inhibitor .

Investigations show :

Haemoglobin 12.9 g/dL

White cell count  $12.4 \times 10^9/L$

Platelets  $296 \times 10^9/L$

Serum sodium 137 mmol/L

Serum potassium 3.9 mmol/L

Serum urea 6.1 mmol/L

Serum creatinine 86  $\mu\text{mol/L}$

Faecal occult blood Negative

What is the most appropriate management for this gentleman?

Options Choose 1

A. Primary angioplasty

B. Start aspirin

C. Start intravenous nitrates and a beta blocker but not heparin

D. Start low molecular weight heparin

E. Thombolyse with tissue plasminogen activator (t-PA)

No.: 86

A

A young patient with acute anterior MI needs urgent reperfusion. Clearly, thrombolysis is contraindicated due to his recent upper gastrointestinal (GI) bleed (although this also increases his risk from primary PCI).





No.: 87

A 55-year-old man was admitted to hospital with a 24-hour history of constant central chest pain radiating to his left arm. He had a past history of hypertension and had had exertional angina for 2 years. His regular medication included aspirin, atenolol and enalapril. On examination he was pale, sweaty and breathless at rest. His ECG showed anterior ST-segment elevation. Thrombolysis was not administered due to the delay in his presentation. Four weeks later he underwent an exercise tolerance test. His resting blood pressure was 140/84 mmHg. The patient developed central chest pain radiating to left arm after 2 minutes of exercise and his blood pressure at this time was measured at 110/65 mmHg. His pre-exercise ECG showed anterior Q waves, but there were no ischaemic changes associated with his chest pain during exercise .

What should be the next step?

Options Choose 1

- A. Stop the exercise test and arrange routine coronary angiography
- B. Stop the exercise test and arrange a thallium exercise test
- C. Stop the exercise test and arrange urgent coronary angiography
- D. Repeat the test off all medication
- E. Encourage patient to continue on the treadmill

No.: 87

C

A blood pressure drop during exercise testing especially in the early stages is an ominous sign and is indicative of critical multi-vessel coronary disease and poor prognosis. The absence of ECG changes is irrelevant in this setting.

No.: 88

A 64-year-old man is noted to have hypertension (174/96 mmHg). He has a history of a myocardial infarction 4 years ago and has a background history of asthma .

What is the antihypertensive of choice for this patient?

Options Choose 1

- A. Angiotensin converting enzyme (ACE) inhibitor
- B. Alpha blocker
- C. Amlodipine
- D. Beta blocker
- E. Thiazide diuretic

No.: 88

A

Whilst all with the exception of a beta-blocker will safely help his BP, only the ACE I has additional cardioprotective benefits for this patient with previous MI.



<p>No.: 89</p> <p>A 45-year-old lady is referred to the outpatient clinic by her general practitioner following the finding of significant hypertension on a routine check-up. Her blood pressure in clinic is measured at 190/98 mmHg. Her electrocardiogram reveals changes in the characteristic of left ventricular hypertrophy .</p> <p>What is the most likely cause for her hypertension?</p> <p>Options Choose 1</p> <p>A. Coarctation of the aorta B. Conn's Syndrome C. Essential hypertension D. Pheochromocytoma E. Renal artery stenosis</p>	<p>No.: 89</p> <p>C</p> <p>You have not been given any additional information to suggest that any of the secondary causes of hypertension are present, therefore the overwhelmingly likely diagnosis is still essential hypertension despite her relatively young age.</p>
<p>No.: 90</p> <p>An 84-year-old lady who lives alone is admitted to hospital following a collapse at home with transient loss of consciousness. On examination she appears well and is alert and oriented. Her pulse is measured at 48 beats per minute with a blood pressure of 110/65 mmHg. Her electrocardiogram on admission shows a sinus bradycardia of 45 beats per minute with no acute or ischaemic changes .</p> <p>What is the most appropriate next step in her management?</p> <p>Options Choose 1</p> <p>A. Administer intravenous atropine B. Admit and arrange a 24-hour tape as an inpatient C. Admit and insert a temporary pacing wire D. Carotid sinus massage E. Observe overnight and arrange a 24-hour tape as an outpatient</p>	<p>No.: 90</p> <p>B</p> <p>She is in sinus rhythm with a reasonable BP so temporary pacing with its attendant risks are not indicated. OP investigation of an elderly woman who lives alone is inappropriate.</p>



No.: 91

A 84-year-old lady presents to casualty with fast atrial fibrillation and dyspnoea. She had a VVI permanent pacemaker implanted one year previously for sick sinus syndrome after she presented with syncope. She is adequately anticoagulated and is referred for direct current (DC) cardioversion .

Which statement is correct?

Options Choose 1

- A. Cardioversion will not affect her pacemaker
- B. Cardioversion is contraindicated because of the pacemaker in situ
- C. Her VVI pacemaker should be upgraded to a dual chamber system
- D. Pacemaker function should be checked after cardioversion and antiarrhythmic therapy added
- E. She should be treated with antiarrhythmic therapy and the cardioversion should be cancelled

No.: 91

**D**  
Care should be taken to deliver the shocks as far from the PPM as possible ♦ the standard paddle positions are OK for a left sided PPM but should be changed to antero-posterior for a right-sided PPM so that the energy does not destroy the PPM's internal circuitry. DC cardioversion is an appropriate treatment for a first symptomatic presentation of sustained atrial fibrillation (AF) and anti-arrhythmic therapy should be introduced to help maintain sinus rhythm (SR) thereafter.

No.: 92

A 76-year-old lady complains of gradually increasing breathlessness over a period of 6 months. She complains of orthopnoea and paroxysmal dyspnoea. She was previously well. She had been treated for hypertension by her general practitioner (GP) 10 years ago, but lately, the diuretics were stopped, because of low blood pressure. Examination reveals that she is breathless on minimal exertion. She has an irregular pulse, BP 95/60 mmHg. Auscultation of the heart revealed a loud first heart sound and a soft systolic murmur at the apex. There were fine crackles in both lung bases. Her ECG shows atrial fibrillation with a ventricular rate of 102 bpm .

What is the most likely diagnosis?

Options Choose 1

- A. Alcoholic cardiomyopathy
- B. Bronchiectasis
- C. Hypertensive cardiac failure
- D. Ischaemic heart disease
- E. Mitral stenosis

No.: 92

**E**  
The clues are the atrial fibrillation (AF) and the loud first heart sound. Not hearing the murmur does not mean it's not actually there!



No.: 93

A 36-year-old woman presents with exertional breathlessness. Echocardiography shows a bicuspid aortic valve with severe aortic stenosis. She says that she and her husband would like to start a family .

What is the most appropriate management strategy?

Options Choose 1

- A. Refer for percutaneous aortic valve valvuloplasty
- B. Refer for bioprosthetic aortic valve replacement
- C. Refer for mechanical aortic valve replacement
- D. Treat medically and plan aortic valve replacement after delivery of her baby
- E. Treat medically and advise that pregnancy is to be avoided

No.: 93

C

She has severe symptomatic AS for which the only treatment is a new valve. Percutaneous valvuloplasty is either a last ditch high mortality therapy in elderly patients unfit for surgery or for young patients (<21) with congenital AS. The teratogenic effects of warfarin are anecdotal and appear to be relatively low, therefore a planned pregnancy with a mechanical valve in situ with a switch to heparin whilst pregnant is the best option overall rather than automatically condemning the patient to high risk redo surgery for a failing bioprosthetic valve in 10-20 years. Pregnancy with untreated severe AS is likely to be catastrophic for all concerned .

A further option is to use an aortic homograft, ie cryopreserved human aortic root including the valve, however you were not offered this as an option.







No.: 94

A 46-year-old man is referred with diarrhoea, dyspnoea and weight loss of approximately 4 months duration. Prior to this he had been fit and healthy. The patient is aware of up to 10 episodes of diarrhoea daily. It also transpires that he frequently has flushes during the day which may occur at any time and during these episodes he is frequently wheezy and breathless. There is no past history of asthma .

Examination reveals: a pulse of 90 bpm regular, a blood pressure of 122/76 mmHg and saturations of 98% on air. His jugular venous pressure is elevated to the angle of his jaw and auscultation of the heart reveals a soft pansystolic murmur at the left sternal edge. He is also noted to have 8 cm hepatomegaly on abdominal examination .

Serum bilirubin 21 mmol/L  
 Serum alanine phosphatase (ALP) 680 IU/L  
 Serum aspartate aminotransferase (AST) 47 IU/L  
 Serum alanine transferase (ALT) 59 IU/L  
 24h Urine 5-hydroxyindoleacetic acid (HIAA) 800 umol/L (Normal Range <210)

Echocardiography reveals marked tricuspid regurgitation and mild pulmonary stenosis .

Which of the following is the worst prognostic feature in this patient's case?

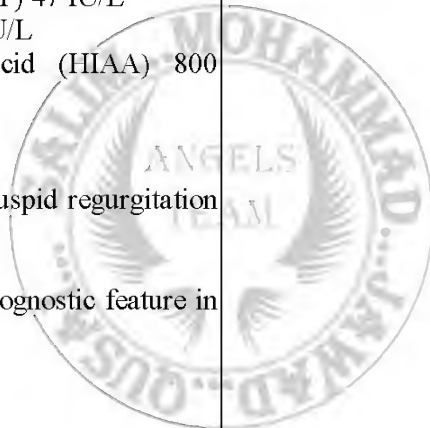
Options Choose 1

- A. Deranged liver function tests
- B. Elevated urinary HIAA
- C. Valvular heart disease
- D. Wheeze
- E. Young age

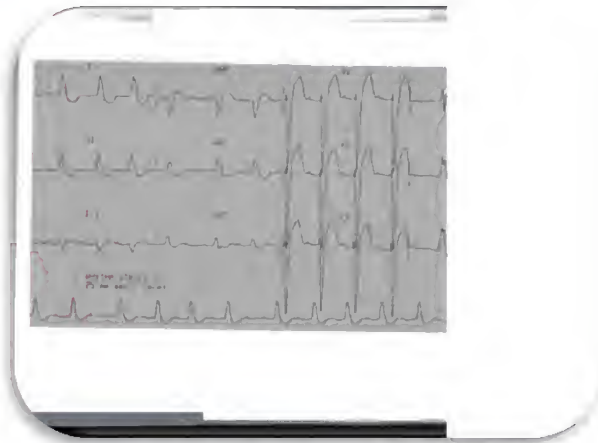
No.: 94

C

The patient clearly has carcinoid syndrome complicated by right heart valvular involvement leading to severe tricuspid regurgitation and also pulmonary stenosis. The presence of right-sided heart disease is an additional poor prognostic indicator in a condition which already has a poor prognosis.



No.: 95



A 45-year-old woman presents with frequent highly symptomatic episodes of rapid atrial fibrillation despite prior treatment with sotalol & quinidine. Her LV function is "normal" and LA size is 5.5cm. She reverts to sinus rhythm after IV sotalol. All of the following are valid treatment options except :

Options

- A. Try amiodarone .
- B. Try flecainide .
- C. AV nodal ablation with PPM .
- D. Referral to specialist unit for consideration for pulmonary vein ablation .
- E. Elective DC cardioversion.

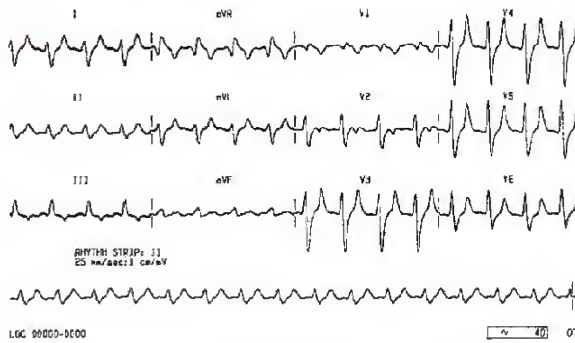
No.: 95

E

The diagnosis of atrial tachycardia with "block" would have been very difficult in this patient had there not been a period of increased block which uncovered the P waves buried in the QRS complex during 2:1 AV conduction. One could have early mistaken this rhythm for sinus with 2nd degree AV block where there is gradual prolongation in the PR interval of the conducted beats until a P wave fails to conduct to the ventricles (Wenkebach). AV conduction ratio of 2:1 is a physiological property of the AV node at atrial rates approaching 200 bpm. First degree AV block should not be diagnosed in this example because of the presence of higher degrees of block. This combination of conduction abnormalities is often seen in digoxin toxicity.



No.: 96



This is the echocardiogram (ECG) of a 72-year-old man with severe heart failure who presents with increased lethargy (it has been recorded at standard speed and voltage) .

What does it show?

Options

- A. Old inferior myocardial infarction (MI)
- B. Left ventricular hypertrophy
- C. Hyperkalaemia
- D. Digoxin toxicity
- E. Lown-Ganong-Levine syndrome

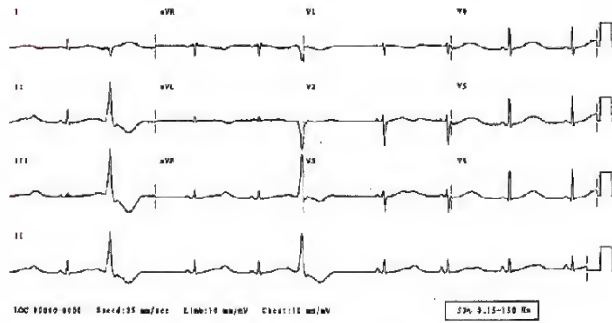
No.: 96

C

The ECG shows the tall  $\blacklozenge$ tented $\blacklozenge$  T waves and QRS broadening of hyperkalaemia. Digoxin toxicity manifests with ST segment depression (the so-called inverse tick appearance), bradycardia (with AV block) or paroxysmal atrial tachycardia). Lown-Ganong-Levine syndrome is a type of paroxysmal supra-ventricular tachycardia and generally has a normal resting ECG.



No.: 97



As the medical senior house officer (SHO) on-call, you are faxed an echocardiogram (ECG) to review from the local Psychiatric hospital. A 54-year-old schizophrenic woman has recovered from a syncopal episode and now has a pulse of 54 bpm and a BP of 146/88 .

The patient's ECG is shown (recorded at standard speed and voltage) .

What is your management?

Options

- A. I.V. calcium gluconate
- B. I.V. magnesium sulphate
- C. Take a drug history
- D. Transfer to your hospital's coronary care unit (CCU) for temporary pacing
- E. I.V. amiodarone

No.: 97

C

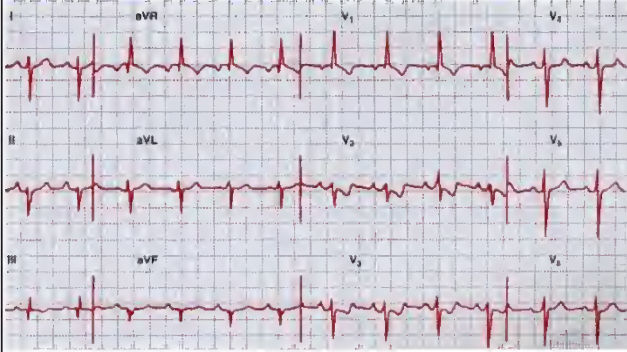
The QT interval is dramatically prolonged. Despite the unavailability of the underlying grid it can nevertheless be appreciated that the QT interval is substantially greater than half the R-R interval. In a schizophrenic patient the likeliest cause of this by far will be psychotropic medication, so it is crucial to know what the patient is taking. Clearly, one may be concerned that the patient has had a self-limiting episode of polymorphic ventricular tachycardia (VT) or Torsades des pointes, but in a haemodynamically stable patient in SR neither temporary pacing nor MgSO<sub>4</sub> are indicated acutely. As amiodarone prolongs the QT interval, it is contra-indicated in this setting.



No.: 98

A 54-year-old man is referred by his general practitioner (GP) to the cardiology clinic after he develops exertional dyspnoea and mild peripheral oedema. His electrocardiogram (ECG) is shown (recorded at standard speed and voltage) .

List three abnormalities .



Options Choose 3

- A. Left axis deviation
- B. Left atrial enlargement
- C. True posterior myocardial infarction (MI)
- D. Left ventricular hypertrophy
- E. Wolff-Parkinson-White (WPW) syndrome type A
- F. Right ventricular hypertrophy
- G. Anterior non-ST elevation MI
- H. Right atrial enlargement
- I. Right bundle branch block (RBBB)
- J. Right axis deviation

No.: 98

F H J

The key abnormality is the dominant R-wave in V1 for which there are four main causes :

- ☐ Right ventricular hypertrophy
- ☐ True posterior infarction (when what you are seeing is the equivalent of a standard Q wave)
- ☐ WPW type A
- ☐ RBBB

This case shows marked right axis deviation and a prominent P-waves in lead 2 (>2 small squares ♦P pulmonale♦) both of which are associated features of right ventricular hypertrophy. The patient is likely to have severe pulmonary hypertension.



No.: 99



This is the electrocardiogram (ECG) of a 57-year-old man with no significant past medical history who presents with palpitations. His blood pressure (BP) is 132/76. The treatment of choice is :

Options

- A. IV adenosine
- B. IV flecainide
- C. IV amiodarone
- D. Synchronised D/C cardioversion
- E. IV magnesium sulphate

No.: 99

**B D G**

It is classically taught that ST segments cannot be interpreted in a patient with LBBB. However, it can clearly be appreciated that there is marked inferior ST elevation in this case (which is not normally seen in LBBB, unlike anterior ST elevation which is).



No.: 100



This is the electrocardiogram (ECG) of a 57-year-old man with no significant past medical history who presents with palpitations. His blood pressure (BP) is 132/76. The treatment of choice is :

Options

- A. IV adenosine
- B. IV flecainide
- C. IV amiodarone
- D. Synchronised D/C cardioversion
- E. IV magnesium sulphate

No.: 100

B

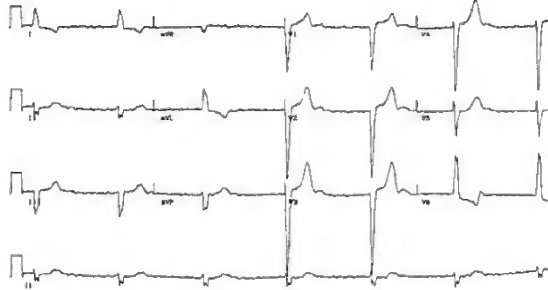
The ECG shows pre-excited atrial fibrillation ♦ the most serious complication of Wolff-Parkinson-White syndrome in which the abnormal repolarisation circuit conducts anti-dromically (i.e., down the accessory pathway and back up the AV node). This causes irregular and abnormal ventricular depolarisation of the ventricles producing the bizarre ECG appearance shown. It is potentially fatal as it may degenerate to VF .

The treatment of choice is IV flecainide which often chemically cardioverts the patients. If this fails or the patient deteriorates haemodynamically, they should be electrically cardioverted. Following restoration of sinus rhythm, the patient should be maintained on oral flecainide and urgently referred to a cardiac electrophysiologist for pathway ablation.



No.: 101

The electrocardiogram (ECG) of an 87-year-old man with syncope is shown (it has been recorded at standard speed and voltage). List three abnormalities .



Options Choose 3

- A. Left bundle branch block
- B. Right axis deviation
- C. Complete heart block
- D. Acute inferior myocardial infarction (MI)
- E. Sinus bradycardia
- F. Acute anterior MI
- G. Atrial fibrillation (AF)
- H. Mobitz type II heart block
- I. Left axis deviation

No.: 101

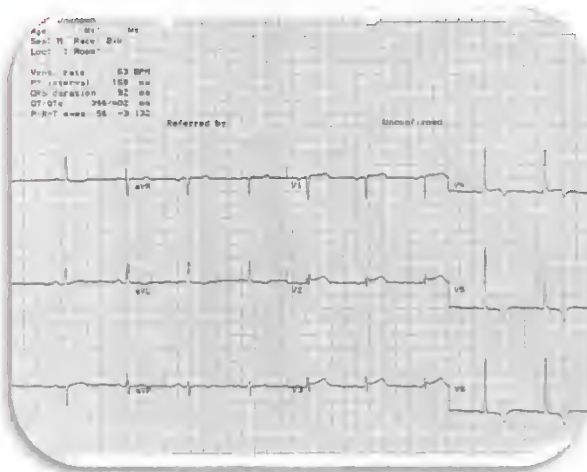
C G I

The patient is bradycardic (a standard ECG recorded at 25 mm/s lasts for 10 s, therefore the heart rate here is 42 bpm). No obvious atrial activity can be seen so the patient has AF. As the rhythm is regular (and bradycardic) they must therefore have complete atrio-ventricular block with a nodal escape rhythm. There is left axis deviation in addition.





No.: 102



The electrocardiogram (ECG) of a 24-year-old man whose older brother had died unexpectedly during his sleep is shown .

What is the diagnosis?

Options

- A. Hypertrophic obstructive cardiomyopathy
- B. Romano-Ward syndrome
- C. Right ventricular arrhythmogenic dysplasia
- D. Brugada syndrome
- E. Fabry's disease

No.: 102

D

The ECG shows the typical ECG changes of Brugada syndrome ♦ partial right bundle branch block (i.e., RSR pattern in V1 but normal QRS duration) and anterior ST elevation. It is a genetic cardiac ♦channelopathy♦, most probably with abnormalities in the cardiac sodium channel. It classically causes spontaneous VF during periods of high vagal tone such as when the patient is asleep. There is no cure and patients require implantable defibrillators .

Romano-Ward syndrome is a form of congenital long QT syndrome. Fabry♦s disease may cause a cardiomyopathy .

Right ventricular arrhythmogenic dysplasia is usually associated with a normal ECG and should be high on the differential diagnosis list of someone being investigated after sudden cardiac death in a close family member.



No.: 103

A 57-year-old man presents to A and E with haemetemesis. He describes having vomited 3 times within the last 12 hours. On the last occasion he vomited a cupful of bright red blood. He has not opened his bowels since the vomiting began. His past medical history is of hypertension and ischaemic heart disease. He had a 'coated stent' implanted 2 months previously and is still taking aspirin 75mg od and clopidogrel 75mg od. His other medications are simvastatin 40mg nocte and perindopril 8mg od. He does not smoke and drinks alcohol only occasionally. On physical examination his heart rate is 90 bpm with a blood pressure of 128/84. There is no postural drop. The remainder of his physical examination is unremarkable apart from epigastric tenderness on deep palpation. His rectum is empty .

His full blood count is as follows :

Hb 13.0g/dl

Platelets 225 (NR 150-400)

White cell count 8.6 (NR 4-11)

What is the correct management of this patient's anti-platelet therapy:

Options

- A. Continue aspirin and clopidogrel at present .
- B. Stop aspirin and continue clopidogrel .
- C. Stop clopidogrel and continue aspirin .
- D. Discontinue aspirin and clopidogrel and arrange urgent platelet transfusion .
- E. Discontinue aspirin and clopidogrel and commence iv tirofiban until upper GI endoscopy.

No.: 103

A

This patient is currently haemodynamically stable with no signs of having had a severe or life-threatening GI haemorrhage. However, to stop even part of his anti-platelet therapy within 3-6 months of drug-eluting coronary stent implantation places him at significant risk of stent thrombosis, which carries a death or MI rate of at least 50% .


Drug-eluting stents deliver anti-mitotic drugs to the coronary wall in order to decrease the smooth muscle cell hyperplasia that causes in-stent restenosis. However, the process of endothelialisation that coats the stent struts is also delayed and patients require DUAL anti-platelet therapy for at least 3 months or longer .

Even if this patient is having a significant GI haemorrhage, premature discontinuation of anti-platelet therapy should only be done after discussion with the patient's cardiologist if at all possible.



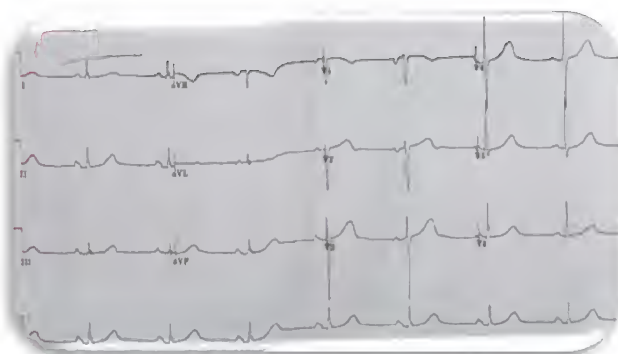
<p>No.: 104</p> <p>A 35-year-old man presents to Casualty with a one-hour history of palpitations. He has a longstanding history of recurrent palpitations which he usually terminates with carotid sinus massage. He has a history of asthma since childhood and takes regular inhaled budesonide with salbutamol as required .</p> <p>His heart rate is 180 bpm with a BP of 116/72 . The 12 lead ECG shows a regular narrow-complex tachycardia .</p> <p>What treatment should be given to cardiovert the patient?</p> <p>Options Choose 1</p> <p>A. Adenosine B. Amiodarone C. Digoxin D. Lidocaine E. Verapamil</p>	<p>No.: 104</p> <p>E</p> <p>Even though its half-life is very short adenosine (which is normally considered the drug of first choice in SVT) may provoke an acute asthmatic attack in a chronic asthmatic. Therefore in this circumstance, with a haemodynamically stable patient with narrow complex tachycardia, verapamil is the drug of choice.</p>
<p>No.: 105</p> <p>A 60-year-old male treated for 4 years for atrial fibrillation presents with nausea and vomiting. ECG revealed ventricular tachycardia and electrolytes revealed hyperkalemia with normal urea and creatinine. Which of the following suppositions is incorrect?</p> <p>Options</p> <p>A. The nausea and vomiting suggest digoxin toxicity B. The hyperkalemia is due to stimulation of the sodium-potassium ATPase pump C. Concurrent use of verapamil would increase the risk of digoxin toxicity D. Intravenous phenytoin may be used to treat the VT E. Hemodialysis has no role in this scenario</p>	<p>No.: 105</p> <p>B</p> <p>Digoxin toxicity is important to suspect and to recognize in any patient on long-term digoxin. The following conditions increase digoxin sensitivity: Amyloid cardiomyopathy, Ischemic cardiomyopathy, Hypokalemia, hypercalcemia, hypomagnesemia. The following drugs increase digoxin levels and can precipitate digoxin toxicity: Amiodarone, verapamil, quinidine, propafenone, erythromycin, tetracycline. Clinical pointers towards digoxin toxicity would include nausea, vomiting and coloured haloes . Hemodialysis has no role in digitalis toxicity unless the patient has extremely poor GFR. Administration of Fab antibody fragments is the most effective treatment. The only anti-arrhythmic indication for Phenytoin is digitalis toxicity.</p>



<p>No.: 106</p> <p>A 72-year-old man presents with 15 minutes of central crushing chest pain. ECG shows 0.5 mm ST elevation in leads V1 and V2. What is the most appropriate treatment :</p> <p>Options</p> <p>A. Accelerated tPA + aspirin          B. Aspirin and repeat ECG in 15 minutes          C. Aspirin + heparin          D. No treatment &amp; repeat ECG in 15 minutes          E. Streptokinase + aspirin</p>	<p>No.: 106</p> <p>B</p> 
<p>No.: 107</p> <p>A 40-year-old female presents to you after being found to have a high blood pressure at the well woman clinic. She takes no medication and is a non-smoker .</p> <p>Examination reveals an obese female with a body mass index of 32.2 kg/m<sup>2</sup>. The mean of three separate blood pressure measurements is 172/98 mmHg. Cardiovascular and fundal examinations are otherwise normal. Her ECG reveals no specific abnormalities .</p> <p>What is the most appropriate initial treatment for this patient's blood pressure?</p> <p>Options</p> <p>A. ACE inhibitor          B. B blocker          C. Alpha blocker          D. Thiazide diuretic          E. Weight reduction</p>	<p>No.: 107</p> <p>E</p> <p>This obese patient has confirmed hypertension, which is associated with no evidence of target organ damage. Consequently, the most appropriate intervention to improve blood pressure control would be weight loss. Studies indicate that a weight loss of 5 kg is associated with as much as a 10 mmHg of systolic blood pressure. Similarly, advocating a low salt diet, restricting alcohol consumption and increasing exercise are all important manoeuvres. The British Hypertension Society guidelines recommend 3 months of lifestyle intervention and if this does not succeed in achieving adequate BP control then drug therapy is required.</p>



No.: 108



This 12-lead ECG was obtained from a 48-year-old man following successful resuscitation from a community cardiac arrest. He had an extensive list of current and previous medication in his wallet. Which is the drug likely to cause the changes on the ECG?

Options

- A. Amiodarone
- B. Digoxin
- C. Amiloride
- D. Lignocaine
- E. Ramipril

No.: 108

A

A large number of drugs have been implicated in causing long QT interval and Torsade-de-pointes ventricular tachycardia .

Digoxin causes a shortened QT interval .

Ramipril and Amiloride could lead to hyperkalaemia but it is hypokalaemia that is associated with Torsade-de-pointes VT .

Lignocaine (and other class 1b anti-arrhythmics) shortens phase 2 of the cardiac cycle and therefore do not prolong the QT interval.

No.: 109

A 22-year-old man presented to Casualty with dyspnoea. He reported that he had experienced sudden, severe anterior chest pain after exercise with associated dyspnoea. He had no past history and had previously been fit and well .

On examination he appeared well and was not dyspnoeic at rest. Heart sounds were normal. An additional clicking noise was heard in the left 4th intercostal space, this sound occurred with each heartbeat .

What is the most likely cause for his pain?

Options

- A. Aortic dissection
- B. Acute myopericarditis
- C. Pulmonary embolism
- D. Spontaneous pneumothorax
- E. Unstable angina

No.: 109

D

They are all potential causes of sudden, severe chest pain. In a young man (without a clear risk factor for very premature CAD), unstable angina would be very unlikely .

The history and examination findings do not entirely fit with aortic dissection or acute pericarditis. Pulmonary embolism is possible, although unlikely without a clear precipitant being given in the history and would not account for all the exam findings .

Young adult males, often tall and slim, are frequently affected by spontaneous pneumothorax. Clinical features include: sudden onset of chest pain - sometimes radiating to the shoulder, dyspnoea (may not be a dominant feature) and dry cough. Left-sided pneumothoraces may be associated with a clicking sound synchronous with the heartbeat and may occasionally be audible to the patient.

No.: 110



A 55-year-old man presents to the Emergency department with mild dyspnoea. He has no significant medical illness apart from a history of rheumatic fever at the age of 15. On examination, his BP is 130/70, oxygen saturation 96% and he is not in heart failure .

An ECG is performed .

All of the following would aid in slowing the ventricular rate, except?

Options

- A. Lignocaine
- B. Carotid massage
- C. Esmolol
- D. Adenosine
- E. Diltiazem

No.: 110

A

The arrhythmia is atrial flutter, which should be suspected when the ventricular rate is 150 and an abnormal p wave is present. The differential is sinus tachycardia or SVT .

Any drug that slows down the AV conduction will be successful in treating the rate in atrial flutter (in the acute setting). Simple vagal manoeuvres are carotid massage and drugs such as beta-blockers (short-acting preferable), adenosine and Ca blockers.

No.: 111

A 40-year-old man is referred to a cardiologist after being found to be persistently hypertensive. An echocardiogram confirms moderate LVH .

Which of the following measures have not been shown to reverse LVH in this setting?

Options

- A. B-blockers
- B. Sodium restriction
- C. ACE-Inhibitor
- D. Alpha blocker
- E. Hydralazine

No.: 111

E

LVH is an independent risk factor for CAD in this setting. In addition, total LV mass per se is a powerful prognostic indicator. Regression of LVH occurs with aggressive BP management with all of the above, except Hydralazine. Hydralazine and minoxidil (direct vasodilators) are the only drugs found not to reverse LVH in this setting.

No.: 112

A 30-year-old woman is referred with a systolic murmur. She gets occasional stabbing, left-sided chest pains and occasionally feels her heart 'miss a beat'.

On examination, she has a mid-systolic murmur heard at the apex.

Which of the following is false?

Options

- A. Her condition is associated with an atrial septal defect
- B. The murmur would be softer on squatting
- C. Her condition is associated with a mutation in the gene for desmin
- D. She will need endocarditis prophylaxis prior to dental procedures
- E. Her condition is associated with long-QT syndrome

No.: 112

D

She has mitral valve prolapse (MVP, but without mitral regurgitation clinically). This condition appears to be associated with most cardiac problems, including atrial septal defect and the long QT syndrome.

It is often asymptomatic, but may cause atypical chest pain or palpitations. There is an association with sudden death. Squatting, by increasing afterload reduces the intensity of the murmur.

Current recommendations are for antibiotic prophylaxis only when there is associated mitral regurgitation in MVP.

No.: 113



A 60-year-old gentleman presents with a recent history of episodes of chest pain occurring during exercise, sometimes radiating to the left arm. The examination reveals a slow rising peripheral pulse, and an ejection systolic murmur best heard at the second intercostal space radiating to the carotids. The figure shows his operative finding. What is this?

Options

- A. Normal mitral valve
- B. Atrial aspect of abnormal tricuspid valve
- C. Ventricular aspect of abnormal mitral valve
- D. Normal pulmonary valve
- E. Calcified aortic valve

No.: 113

E

The figure shows the typical superior aspect of a ventricular outflow valve with three cusps (either aortic or pulmonary), with calcification of the cusps. The aortic and pulmonary valves (ventricular outflow) are quite similar in structure and consist of three cusps or leaflets separated by commissures, three-pronged fibrous annulus and superiorly three dilations of the aortic/pulmonary wall (sinuses of valsalva). The aortic valve leaflets are referred to as the left coronary, right coronary and non-coronary leaflets. The mitral and tricuspid valves (ventricular inflow) each consist of an annulus, leaflets, chordae tendinae and papillary muscles. In cases of congenital malformations, aortic valves may be unicuspid or bicuspid. A calcified aortic valve can be seen on a chest X-ray on a lateral film on or above a line joining the carina to the sternophrenic angle. Calcification can be due to sclerosis with degeneration of valve leaflets and it may or may not be associated with a degree of aortic stenosis.



No.: 114



The cause of dyspnoea in this 10-year-old boy is likely to be:

Options

- A. Asthma
- B. Recurrent pulmonary emboli
- C. Eisenmenger's ASD
- D. Fallot's tetralogy
- E. Kawasaki Disease

No.: 114

A

The chest X-ray is normal. ASD would be expected to lead to cardiac enlargement, Kawasaki Disease leads to large vessel arteritis, and Fallot's tetralogy presents at a much earlier age.





No.: 115



Which of these drugs has precipitated the need for this patient's CT scan :

Options

- A. Digoxin
- B. Clopidogrel
- C. Diltiazem
- D. Amiodarone
- E. Atenolol

No.: 115

D

The CT shows extensive lung fibrosis, which may be associated with amiodarone use.



No.: 116



A 16-year-old female basketball player is noted to have a 'slow' pulse by her local GP. She complains of no cardiovascular symptoms. She has the following ECG .

What should be the next step in management?

Options

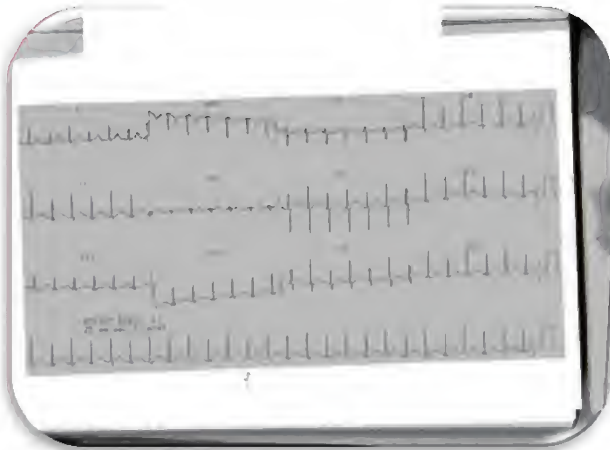
- A. Referral for echocardiogram
- B. A more extensive family history
- C. Atropine
- D. Referral for EP study
- E. Reassurance

No.: 116

E

The ECG shows sinus rhythm with wandering atrial pacemaker to the AV junction. Otherwise, it is normal. This is a clinically insignificant rhythm in a young fit patient. The rate of the ectopic pacemaker is slightly faster than the sinus rate and usurps control for a period of time. In athletes, the sinus node rate can be suppressed by vagal influences from physical training, and a subsidiary pacemaker can temporarily take over.

No.: 117



A 26-year-old woman presents with palpitations. She has been otherwise well and is not on any regular medications .

On examination, her heart rate is 140bpm, BP is 150/80mmHg, with a paradox of 12/5mmHg. Heart sounds are dual with no added sounds. Her jugular venous pressure is not elevated and her chest is clear to auscultation .

An ECG is taken .

What is the most likely diagnosis:

Options

- A. Pericardial tamponade
- B. Atrial fibrillation
- C. Atrial tachycardia
- D. Sinus tachycardia
- E. Ventricular tachycardia

No.: 117

C

The echocardiogram (ECG) shows atrial tachycardia with electrical alternans (EA; alternating heights of QRS complexes). This finding is highly suggestive that the arrhythmia uses an atrio-ventricular bypass tract .

The presence of electrical alternans is very helpful in distinguishing the rhythm in this tracing as a supraventricular tachycardia (SVT) rather than simply sinus tachycardia. EA may also be seen in pericardial tamponade, but the exam findings do not suppose this diagnosis.



No.: 1



No.: 1

A



No.: 2



No.: 2

C



No.: 3



No.: 3

E



No.: 4



No.: 4

A







No.: 5



No.: 5

A



No.: 6



No.: 6

B



No.: 7



No.: 7

B



No.: 8



No.: 8

D





No.: 9



No.: 9

D



No.: 10



No.: 10

E



No.: 11



No.: 11

C



No.: 12



No.: 12

A





No.: 13



No.: 13

C



No.: 14



No.: 14

B



No.: 15



No.: 15

A



No.: 16



No.: 16

A





No.: 17



No.: 17

A



No.: 18



No.: 18

A

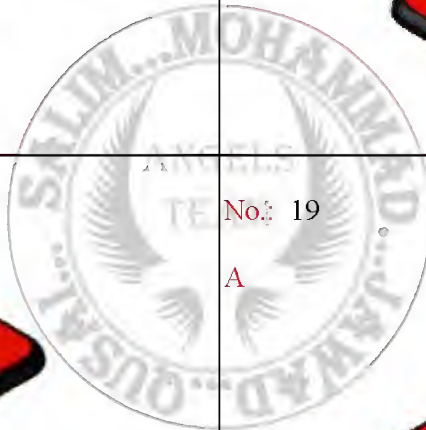


No.: 19



No.: 19

A





No.: 20



This patient has haemoptysis and renal dysfunction :

Options

- A. Wegeners
- B. Rheumatoid
- C. Small cell Ca
- D. Goodpastures
- E. SLE

No.: 20

D

Massive intrapulmonary bleeding has led to opacities (white-out) of both mid and lower zones on chest X-ray. The mortality rate is high as a result of pulmonary and renal involvement. KCO is high because of intra-alveolar red cells. There is a male preponderance (2:1) and an association with HLA DR2. Treatment is plasmapheresis, steroids and cyclophosphamide. Wegeners would be a strong differential diagnosis but it is characterised by patchy infiltrates or masses or both on chest X-ray.

No.: 21



No.: 21

B



No.: 22



No.: 22

C



No.: 23



No.: 23

C



No.: 24



No.: 24

A

Causes of BHL and paratracheal lymphadenopathy :  
TB, Sarcoid, Lymphoma and Berylliosis

Which of the following is not a possible diagnosis:

Options

- A. Primary Pulmonary Artery Hypertension
- B. Sarcoidosis
- C. Berylliosis
- D. Tuberculosis
- E. Lymphoma



No.: 25



No.: 25

B



No.: 26



No.: 26

E



No.: 27



Which of the following is not a cause of the X-ray abnormality:

Options

- A. Primary TB
- B. Post Primary TB
- C. Staphylococcus aureus
- D. Klebsiella pneumoniae
- E. Coccidiomycosis

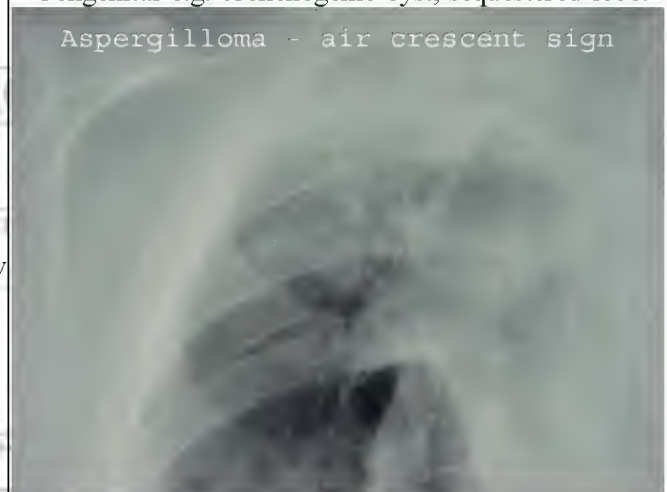
No.: 27

A

- Primary TB = LL & ML consolidation plus Mediastinal Ly
- Post Primary TB = apical

Causes of Cavitation :

- \*Infection (e.g. Staph aureus, Klebsiella pneumoniae, TB, actinomycosis, histoplasmosis, coccidiomycosis, hydatid) .
- \*NG et CA especially Squamous Cell, Mets especially Sq cell/colon/sarcoma, Lymphoma
- \*Vascular e.g. infarction .
- \*Granulomatous e.g. Wegeners, RA, Progressive Massive Fibrosis, Sarcoidosis .
- \*Congenital e.g. bronchogenic cyst, sequestered lobe.



Aspergilloma - air crescent sign

No.: 28



No.: 28

D





No.: 29



No.: 29

E



No.: 30



No.: 30

C



No.: 31



No.: 31

E

Causes of cyst/cavity formation with air space shadowing :

- \*PCP pneumonia
- \*TB pneumonia
- \*Klebsiella pneumonia
- \*Staph aureus pneumonia

What is the least likely diagnosis from the following for the X-ray you can see?

Options

- A. Tuberculosis
- B. Klebsiella sp
- C. Staphylococcus
- D. PCP (Pneumocystis carinii pneumonia)
- E. Squamous cell ca



No.: 32



No.: 32

B



No.: 33



No.: 33

E



No.: 34



What is the diagnosis you can make out from the Chest X-ray shown?

Options

- A. Right lower lobe collapse
- B. Right lower lobe consolidation
- C. Right middle lobe consolidation
- D. Right middle and lower lobe consolidation
- E. Right pleural effusion

No.: 34

B

Features Of consolidation :

- \*No loss of volume
- \*Air bronchograms, therefore, consolidation/air space shadowing
- \*Right hemi-diaphragm outline lost
- \* Right heart border still seen, therefore, right lower lobe

No.: 35



No.: 35

B





No.: 36



No.: 36

D



No.: 37



No.: 37

B





No.: 38



Which of the following is not a cause of the finding in the X-ray?

Options

- A. Tuberculosis
- B. Rheumatoid Arthritis
- C. Asbestosis
- D. SLE
- E. Amiodarone

No.: 38

A

This X-ray shows lower zone ground glass infiltrates .

\*UZ fibrosis:( Tuberculosis, Sarcoidosis)

\* LZ fibrosis (in photo): CRABS (CFA, RA/Scler/SLE etc, Asbestos, Bleomycin etc (drugs), Scleroderma)

No.: 39



No.: 39

E



No.: 40



No.: 40

C



No.: 41



No.: 41

D

\*Left hemithorax greater volume than right

\*Air outlines right mediastinal border (i.e. has crept posteriorly)

What can you infer from the Chest X-ray?

Options

- A. Left pneumothorax
- B. Left lower lobe collapse
- C. Left lingula collapse
- D. Left tension pneumothorax
- E. Left hilar adenopathy



No.: 42



No.: 42

D



No.: 43



No.: 43

D

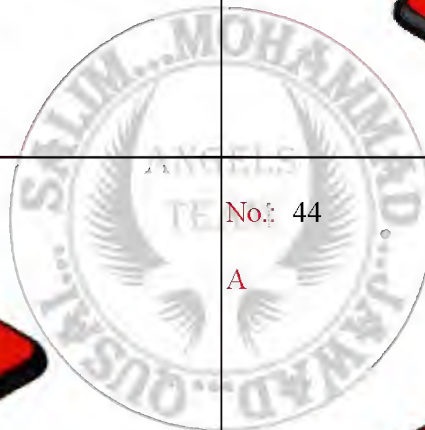


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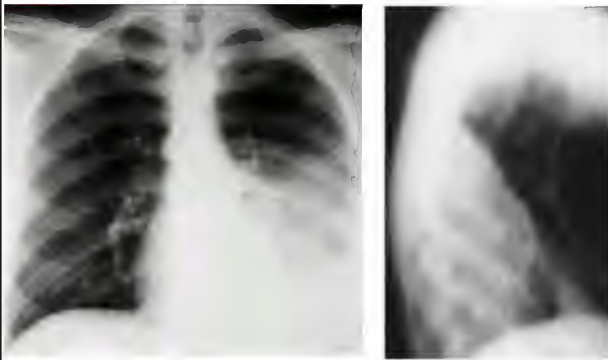


No.: 44

A



No.: 45



What is the diagnosis?

Options

- A. Left lower lobe consolidation
- B. Left lower lobe collapse
- C. Left lingular consolidation
- D. Left lingular collapse
- E. Right lower lobe consolidation

No.: 45

A

\*No loss of volume and there is airspace shadowing, therefore, it is consolidation .

\* Left paraspinal line (and left hemi-diaphragm) obscured, therefore, left lower lobe.



No.: 46



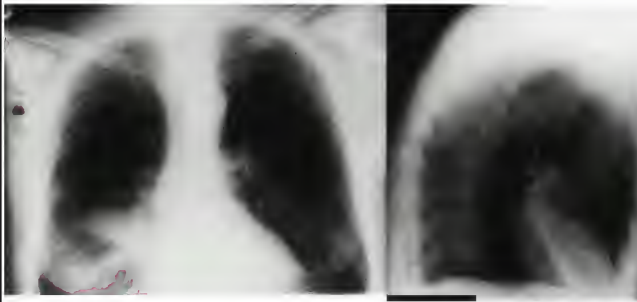
No.: 46

C





No.: 47



What is the diagnosis?

Options

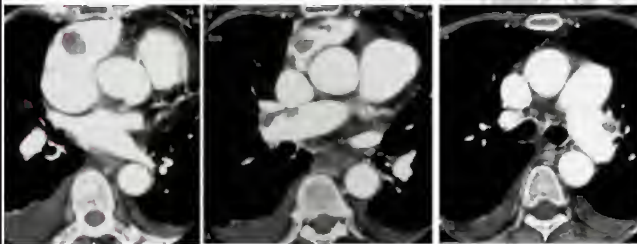
- A. Right lower lobe consolidation
- B. Right middle lobe collapse
- C. Right middle lobe consolidation
- D. Right middle and lower lobe consolidation
- E. Right pleural effusion

No.: 47

B

- \*Loss of volume on right
- \*Right heart border lost on AP
- \*Increased shadowing over heart on lateral
- \* RML lies anteriorly and adjacent to right heart border, therefore, obscures this when it collapses

No.: 48



What is the diagnosis?

Options

- A. Right atrial myxoma
- B. Nodular pulmonary hypertension
- C. Right and left pulmonary emboli
- D. Right ventricular myxoma
- E. Right atrial and ventricular myxomas

No.: 48

C

The picture shows :

- \*CT Pulmonary angiogram
- \*Peripheral injection via venflon
- \*Early (12-20 sec)
- \*Thrombus in pulmonary arteries and RV



<p>No.: 49</p> <p>A 17-year-old patient presents with cough, wheeze and low-grade fever. The eosinophil count is raised. Which of the following is the least likely diagnosis?</p> <p>Options</p> <p>A. Extrinsic allergic alveolitis B. Bronchial asthma C. Tropical pulmonary eosinophilia D. Churg-Strauss syndrome E. Allergic bronchopulmonary mycosis</p>	<p>No.: 49</p> <p>A</p> <p>Extrinsic allergic alveolitis is not associated with wheezing, but with fever, coughing and dyspnoea. In addition, eosinophilia is not a feature .</p> <p>All the rest causes eosinophilia.</p>
<p>No.: 50</p> <p>A 16-year-old Caucasian male with a chronic productive cough presents with haemoptysis. He had a normal CXR as a child. He is known to have recurrent sinusitis. He has no known allergies or atopy. Sweat test was normal .</p> <p>What is the likely diagnosis?</p> <p>Options</p> <p>A. Cystic fibrosis B. Kartagener ♦s syndrome C. Allergic bronchopulmonary aspergillosis (ABPA) D. Young's syndrome E. Pulmonary embolus</p>	<p>No.: 50</p> <p>D</p> <p>Young's syndrome comprises obstructive azoospermia (but normal testicular function), sinusitis and bronchitis/bronchiectasis .</p> <p>Kartagener ♦s syndrome is characterised by situs inversus, sinusitis, bronchiectasis and infertility.</p>

No.: 51



This was an incidental finding on a chest X-ray (CXR) in a 52-year-old woman, who then had a computed tomography (CT) scan. The most likely diagnosis is :

Options

- A. Left upper lobe pneumonia .
- B. Carcinoma in the left upper lobe .
- C. Left Pancoast tumour .
- D. Lesion of Wegner's granulomatosis in the left upper lobe .
- E. Aspergilloma in the left upper lobe.

No.: 51

B

Findings :

Spiculated, irregular, non-cavitating mass in the left upper lobe, with strands extending to pleura (no cavity present).



No.: 52



This 18-year-old Somali refugee came into accident & emergency (A&E) with a cough and pyrexia .

The most likely diagnosis is :

Options

- A. Left upper lobe scarring from old tuberculosis (TB) .
- B. Active TB in the left upper lobe .
- C. Fungal infection in the left upper lobe .
- D. A pleural plaque in the left upper chest .
- E. Parasitic infection in the left upper lobe.

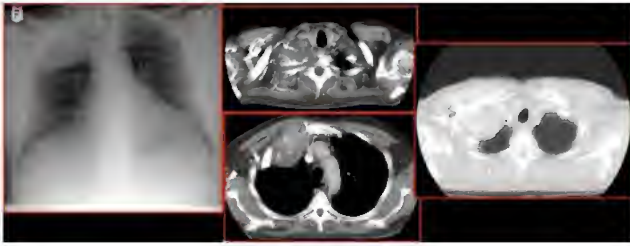
No.: 52

**B**

There is a solitary ill-defined density in the left upper lobe which appears to be cavitating, and is not calcified. There is no volume loss.



No.: 53



This 55-year-old man had an episode of haemoptysis .  
The most likely diagnosis is :

Options

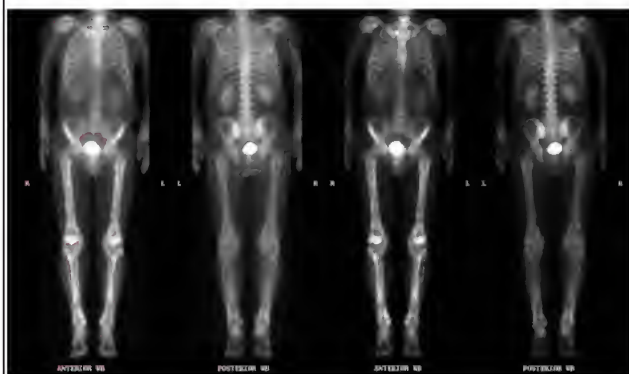
- A. Tuberculosis .
- B. Right upper lobe pneumonia .
- C. Mesothelioma .
- D. Right Pancoast tumour .
- E. Mycetoma.

No.: 53

D



No.: 54



This 64-year-old male smoker with no other past history of note complained of bilateral lower leg pain. His bone scan is shown .

What is the diagnosis?

Options

- A. Osteomalacia
- B. Pagets disease
- C. Hyperparathyroidism
- D. Hypertrophic osteoarthropathy (HOA)
- E. Tibial splints

No.: 54

D

Findings :

-There is increased tracer uptake along the cortex of the tibia and fibular shafts. The patient had an underlying squamous cell carcinoma of the bronchus .

**Causes of HOA include :**

- ☐ Cardiac: cyanotic congenital heart disease .
- ☐ Pulmonary: carcinoma of the bronchus (1-10%), bronchiectasis / cystic fibrosis, emphysema, metastatic deposits and abscess .
- ☐ Pleural: mesothelioma and pleural fibroma .
- ☐ Abdominal: cirrhosis (especially primary biliary cirrhosis), Crohn's disease, ulcerative colitis, neoplasia and biliary atresia .
- ☐ Other: nasopharyngeal and oesophageal carcinoma, and infected arterial grafts .

The clinical presentation may include clubbing, joint pain and soft tissue swelling. The commonest cause is carcinoma of the bronchus. Pleural fibroma has the highest incidence of associated HOA but is itself rare .

Radiographic changes are seen at the tibia, fibula, radius and ulna in about 80% each; and in the proximal phalanges (60%), femur (50%), metacarpals / metatarsals (40%) and humerus and distal phalanges (25%). Joint space narrowing and erosions are not seen in HOA .

Removal of the underlying cause can lead to resolution of symptoms. The radiographic changes take longer to resolve. If the primary lesion recurs the HOA may be exacerbated .

In hyperparathyroidism and osteomalacia a superscan (intense uptake throughout the skeleton; more than the kidneys) may occur. Loosers zones are seen in osteomalacia .

Pagets disease is characterised by increased uptake across the whole bone which is deformed.





No.: 55

An 85-year-old man was admitted to hospital with chest pain. He had a past history of myocardial infarction and had subsequently developed heart failure, which was normally well-controlled with furosemide 80 mg od, enalapril 5 mg bd and isosorbide mononitrate MR 30 mg od .

He had no other past history of note, apart from a chest injury 65 years ago whilst serving in the army during the second world war. He had been born and raised in India, but had lived in the UK for all of his adult life, where he had worked as a teacher and headmaster .

His electrocardiogram (ECG) showed inferior ST segment elevation and his serum troponin T and CK were both elevated. His Chest X-ray showed pleural calcification at the right base .

Select the two most likely causes of pleural calcification in this patient :

Options Choose 2

- A. Adenocarcinoma of bronchus
- B. Chickenpox
- C. Childhood measles
- D. Chronic congestive cardiac failure
- E. Mesothelioma
- F. Occupational exposure chalk dust
- G. Post-traumatic
- H. Primary hyperparathyroidism
- I. Tuberculosis
- J. Yellow nail syndrome

No.: 55

G I

This question tests your knowledge of causes of pleural versus pulmonary calcification. Of the options above only mesothelioma, trauma and tuberculosis (TB) are causes of pleural calcification. Asbestos exposure is an other important cause of calcified pleural plaques as is any cause of haemothorax. Varicella pneumonitis can heal with calcific pulmonary nodules.





No.: 56

A 39-year-old man was referred to hospital by his GP. Over a period of three to four months he had developed a persistent wheeze. He is brought to hospital by ambulance from his workplace where he became acutely breathless. Two months previously his GP had tried treatment with inhaled salbutamol to minimal effect. The patient was eventually forced to take sick leave from his work as a solderer in a local factory. During this time, his GP added oral prednisolone, with good initial symptomatic improvement - and the patient felt well enough to return to work the next week. Unfortunately, his symptoms returned shortly after returning to work. The patient stopped his steroids at this point as he considered they were no longer working.

The patient then took two weeks annual leave and travelled with his family on holiday to Ireland for two weeks. During the holiday he found that his wheeze improved significantly. Two days after returning to work his colleagues call an ambulance because he has an acute asthma attack in work and is brought to the A&E unit. He is a non-smoker and does not take any regular medication. There is no past history of asthma in childhood or any other conditions.

On examination he is dyspnoeic at rest and barely able to speak in short sentences. Respiratory rate is 28/minute. There are widespread inspiratory and expiratory polyphonic wheezes throughout both lungs.

BP 140/88 with no detectable paradox. He is afebrile. The rest of the examination is unremarkable.

He is treated with nebulized salbutamol and intravenous steroids and makes a significant improvement within 48 hours. Investigations reveal:

On admission:

Haemoglobin 14.8g/dl

White blood cells  $8.5 \times 10^9/l$

Platelets  $345 \times 10^9/l$

Serum sodium 139mmol/l

Serum potassium 4.0mmol/l

Serum urea 3.8mmol/l

Serum creatinine 80 mmol/L

PEFR 320l/min

48h after admission

PEFR 650l/min

Which of the following investigations should be performed next:

Options Choose 1

- A. Bronchoscopy and bronchoalveolar lavage
- B. CT scan of the thorax
- C. Full pulmonary function tests
- D. Lung biopsy
- E. Peak flow rates measured at home and in work

No.: 56

E

The history is strongly suggestive of an environmental trigger for bronchospasm at the patient's workplace. It may be that he has to change jobs in order to avoid the extrinsic allergic trigger of his asthma.





No.: 57

A 34-year-old plumber is admitted with a 3-day history of dry cough, fever and headache. He has no history of foreign travel or ill contacts, and is an otherwise well non-smoker .

On examination, he has a low-grade fever and is tachypnoeic and found to have diffuse crepitations at both lung bases .

Bloods reveal: U+E normal, ESR = 76, Hb = 7.4, mcv = 103 fl, WCC = 17 (80% neutrophils), bilirubin 80 .

On routine blood donation 2 weeks ago, his haemoglobin was 13.6 .

His chest X-ray is normal .

The most useful investigation is :

Options

- A. Bacterial serology
- B. Haematinics
- C. Reticulocyte count
- D. Upper and lower GI endoscopy
- E. Sputum for microscopy, culture and AAFBs

No.: 57

A

Mycoplasma pneumonia is considered as one of the atypical pneumonias. Although they are classically described as presenting with a viral prodrome, non-productive cough, low-grade fever, diffuse crepitations and diffuse shadowing on the chest X-ray, they may also present as the more typical lobar pneumonia .

Diagnosis of the atypical pneumonias is by serology, with the exception of Legionella, where urinary antigen detects the majority of cases .

Mycoplasma is associated with specific complications, often asked for in the Magnetic Resonance Cholangiopancreatography (MRCP) :

- Arthralgias
- Cervical lymphadenopathy
- Bullous myringitis
- Meningoencephalitis
- Immune haemolytic anaemia (??bili, ??mcv, ??retics, ??haptoglobin, ??mcv)
- Myocarditis
- Pericarditis
- Myalgia



No.: 58

A 41-year-old man is admitted with a weak left arm and fever of 38.9 °C. He has no neck stiffness, confusion, and rash or decreased conscious level. He has a history of exertional dyspnoea for the last 5 years, and is a lifelong non-smoker, but his oxygen saturations are 89% on air. He has a family history of stroke, and several members of his family are under investigation for a low blood count.

He proceeds immediately to CT scan, which reveals a ring-enhancing lesion in the right parietal lobe. During his scan, his blood results return showing: C-reactive protein (CRP) = 180, White cell count (WCC) = 16, U+E = normal, Hb = 8.8, mcv = 65, platelets (plts) = 267.

Three days later, he suffers a dense right hemiplegia.

The most likely diagnosis is :

Options

- A. Hereditary Haemorrhagic telangiectasia
- B. Vasculitis
- C. Patent Foramen Ovale
- D. Pulmonary AV malformation
- E. Ventricular Septal Defect

No.: 58

A

Hypoxia in association with a stroke suggests a right to left shunt, here caused by pulmonary arteriovenous malformation (PAVM). The presence of family history and anaemia (from gut AVMs) suggests the diagnosis :

HHT :

Autosomal dominant

AVMs in gut/lung sequelae

Telangiectasia on lips/perioral

Shunts :

Right to left shunt created by AVMs

Cause stroke (no pulmonary capillary filter)

Cause hypoxia (does not correct with oxygen and orthodeoxia)

May cause chest pain and haemoptysis



No.: 59



A 37-year-old hairdresser who is known to be HIV positive presents with shortness of breath on exertion. The symptoms have slowly progressed over a period of months. He has never had a cough or produced sputum, although he smokes 20 cigarettes per day. His HIV status was diagnosed after his partner was diagnosed with AIDS 4 years previously, and he has had no AIDS defining illnesses. He takes no medications and is otherwise well.

On examination, the chest is clear and his respiratory rate is 14 bpm at rest. His saturations decrease from 96% at rest to 87% on moderate exercise. Spirometry is normal.

The chest radiograph is shown.

What is the next best test to establish the diagnosis?

Options

- A. Bronchoscopy and Lavage
- B. Echocardiography
- C. Lymph node biopsy
- D. Autoantibody titres
- E. CD4 count

No.: 59

B

Enlarged pulmonary arteries with normal lung parenchyma on chest X-ray suggest pulmonary arterial hypertension (PAH). HIV is associated with a form of primary PAH. Other causes for breathlessness in this man would be anaemia (secondary to drugs and infections e.g. Parvovirus B19), pneumocystis carinii pneumonia (PCP), and pulmonary emboli. The history of gradually progressive dyspnoea fits best with a diagnosis of PAH, although the exercise desaturation itself could be due to any of the above causes.

Primary/Idiopathic PAH :

Definition = resting mean PAP >25 mm Hg

Divided into :

Pulmonary arterial hypertension (Idiopathic/Primary ♦ absence of secondary causes)

Familial

Related to other disease (CTD, HIV, drugs)

Pulmonary venous hypertension

Associated with hypoxaemia (Chronic Obstructive Pulmonary Disease (COPD)/pulmonary fibrosis)

Associated with chronic thrombotic/embolic disease

HIV :

Associated with PAH in 1:200 cases

Other causes of PAH in HIV/AIDS = embolic material (ivdu), chronic emboli, chronic hypoxia, liver disease

Sporadic PAH can occur in :

- (1) Anorectic drug use ♦ fenfluramine
- (2) Cocaine/amphetamine use
- (3) Portal hypertension
- (4) HIV
- (5) Human herpesvirus 8 (HHV-8)



No.: 60

A 50-year-old man develops dysphagia and weight loss. An upper GI endoscopy is performed, which shows a constricting tumour in the lower third of the oesophagus, a squamous cell carcinoma. He undergoes endoscopic dilatation of the stricture with good symptomatic relief.

24 hours after the procedure, he develops acute dyspnoea and chest pain. His chest x-ray reveals a right sided pleural effusion.

Which of the following is likely to be found in the pleural fluid analysis :

Options

- A. Abundant (>10% of total WBC) eosinophils
- B. PH 8.0
- C. Pleural fluid to serum protein ratio 0.34
- D. High amylase
- E. High cholesterol

No.: 60

D

Pleural effusion secondary to oesophageal rupture is classically an exudate with a high amylase content (from saliva). The differential diagnosis for a high amylase pleural effusion is oesophageal rupture (most commonly iatrogenic, but also tumour and trauma), pancreatitis and malignant pleural involvement (adenocarcinoma).

Oesophageal rupture may be differentiated from other causes by analysing the isoenzyme (salivary origin in rupture).

Raised eosinophils in pleural fluid are a non-specific finding, most often associated with the presence of blood or air over a prolonged period.







No.: 61

A 67-year-old woman with seropositive rheumatoid arthritis complains of shortness of breath on exertion. She has previously smoked 20 cigarettes per day for 30 years. She has tried a variety of disease modifying drugs for her rheumatoid arthritis .

She is seen in the respiratory clinic, where her chest examination and X-ray (CXR) is normal, and her lung function reveals :

FEV1 = 60% predicted FVC = 90%  
KCO = normal RV = 120%

She defaults from follow up secondary to very painful joints, and is next seen with worse breathlessness 3 months later .

Her CXR again shows no gross abnormality and her lung function reveals :

FEV1 = 20% FVC = 85%  
KCO = normal RV = 190%

What is the most likely diagnosis?

Options

- A. Cryptogenic organising pneumonia
- B. Bronchiolitis obliterans
- C. Rheumatoid associated lung fibrosis
- D. Methotrexate induced pneumonitis
- E. Chronic obstructive pulmonary disease

No.: 61

B

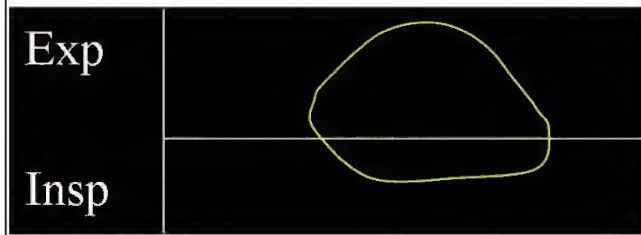
There is a rapid decline in lung function over a 2-month period, with an increasingly obstructive pattern. Although the initial lung function would be explained by her smoking history, the rapid decline and normal KCO (volume corrected transfer factor) are against this being Chronic Obstructive Pulmonary Disease (COPD) alone .

Bronchiolitis obliterans is a relentlessly progressive obstructive lung disease associated with rheumatoid arthritis, and seen post-lung transplant. CT scans show evidence of air trapping, and treatment (rarely successful) is with steroids.





No.: 62



A 70-year-old man presents with a hoarse voice. He has a 6-week history of increasing exertional dyspnoea, pain on swallowing and coughing. He is an ex-smoker of 20 pack years, and has had seropositive rheumatoid arthritis for 15 years, for which he is on sulphasalazine and ibuprofen .

Examination is normal apart from rheumatoid changes in the hands .

His chest X-ray is normal and his flow volume loop is shown .

What is the most likely diagnosis?

Options

- A. Rheumatoid associated fibrosing alveolitis
- B. Oesophageal candidiasis
- C. Laryngeal carcinoma
- D. Cricoarytenoid arthritis
- E. Tracheal tumour

No.: 62

D

The flow volume loop shows an inspiratory limb far more constricted than the expiratory limb. This means that there is a variable extrathoracic obstruction. In combination with the history, this is suggestive of arthritis affecting the cricoarytenoid joint .

Diagnosis is by direct laryngoscopy/bronchoscopy, and electromyography (EMG) may allow differentiation between joint disease and a mononeuritis of the recurrent laryngeal nerve.





No.: 63

An 18-year-old woman is brought to the casualty department with severe shortness of breath and wheeze. She is unable to give a good history, but a relative reports that she is normally a well controlled asthma sufferer, using inhaled ventolin and becotide daily. She normally wakes with cough most nights .

On examination, she is distressed, tachycardic and tachypnoeic. Her saturations are 96% on air, and her chest reveals quiet wheeze only. Her chest x-ray is normal .

She is treated with 15L / min oxygen, intravenous steroid and nebulised salbutamol by the casualty SHO .

Two hours later, she has a respiratory rate of 35 and continues to be distressed. An arterial blood gas reveals :

pH = 7.37 pCO<sub>2</sub> = 5.2 pO<sub>2</sub> = 55.6 HCO<sub>3</sub> = 24

Her blood results reveal the following :

U+E = normal LFTs = normal Hb = 14.3

WCC = 8.2 neutrophils = 70%

Eosinophils = 10%

What is the most appropriate next step in management?

Options

- A. Toxicology screen
- B. Trial of non-invasive ventilation
- C. Intravenous magnesium
- D. Intensive care referral
- E. Decrease inhaled oxygen

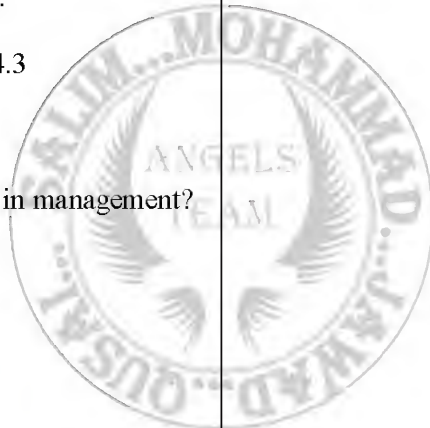
No.: 63

D

Raised eosinophils (total count here of 0.82) are compatible with a diagnosis of atopic asthma .

The ABGs reveal a pCO<sub>2</sub> at the upper end of the normal range, despite tachypnoea. In a young asthmatic with no chronic lung disease, this is a worrying sign and implies the patient may require ventilatory support very soon .

Although steroids should have been given earlier, they will take several hours to take effect (iv or oral) and hence are not the priority in management. The evidence for iv magnesium in acute asthma severe asthma is not strong.





No.: 64

A previously fit and well 50-year-old man is admitted with a 1-week history of increasing dyspnoea, confusion and myalgia. He was treated by his general practitioner (GP) for a respiratory tract infection with amoxicillin for 5 days, having returned 10 days ago from a holiday in Spain. He is an ex-smoker with no pets or occupational exposure .

On examination he is confused and pyrexial. He is tachycardic with a blood pressure of 90/40, and tachypnoeic with saturations of 92% on air. There are coarse crackles at the right base .

Investigations reveal :

Bili 22  
ALT 72  
ALP 102  
CK 468  
WCC 13.1 (normal differential)  
Urea 8  
Creatinine 155  
Na 126  
K 4.3

He is immediately treated with fluid resuscitation and broad-spectrum antibiotics. Despite this, he deteriorates and requires intubation and transfer to the intensive care unit (ITU) for mechanical ventilation .

Which investigation is likely to establish the diagnosis?

Options

- A. Autoantibody screen
- B. High resolution CT thorax
- C. Urine culture
- D. Urine antigen test
- E. Blood cultures

No.: 64

D

The diagnosis is Legionaire's disease. The most efficient way of establishing diagnosis is the urinary antigen test .

Legionaire's disease has an incubation period of 2-10 days. Male to female ratio is 2:1 .

Features :

Predilection for institutions/close living  
Presents with viral like prodrome  
Chest pain/haemoptysis common  
Extrapulmonary signs common (extensive list)  
High mortality (mechanical ventilation in 25% of cases vs <5% of community acquired pneumonia)

Diagnosis :

Urinary legionella Ag (serotype 1 only)  
Respiratory cultures or direct immunofluorescence

Treatment ♦ supportive measures + macrolides +/- rifampacin.





<p>No.: 65</p> <p>A 45-year-old recent immigrant from Pakistan presents with a 6 week history of sweats and increasing breathlessness. He smokes heavily but has no occupational exposure of note. 3 months previously had a painful left knee, treated with analgesia .</p> <p>On examination, he has some axillary lymphadenopathy and signs consistent with a left pleural effusion .</p> <p>A chest x-ray confirms the left pleural effusion, and his Mantoux test is negative. Pleural aspirate reveals clear fluid with a Protein of 57g/dL and a predominance of lymphocytes .</p> <p>Which of the following investigations is most likely to produce a definitive diagnosis :</p> <p>Options</p> <p>A. Pleural fluid culture B. Pleural biopsy for histology C. Pleural biopsy for culture D. Pleural fluid PCR E. Pleural fluid adenosine deaminase</p>	<p>No.: 65</p> <p><b>C</b></p> <p>Lymphocytic pleural effusion can be secondary to TB, malignancy, rheumatoid disease or chylothorax. The combination of sweats, ethnic origin, and lymphocytic exudate is highly suggestive of TB. The previous episode of monoarthritis also suggests TB in this context .</p> <p>Pleural fluid ZN stain and culture has a low yield for tuberculous pleuritis, and pleural biopsies are often required.</p>
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<p>No.: 67</p> <p>A 16-year-old woman is admitted with acute shortness of breath. She refuses to give any history, but her mother confirms that she has no known medical history. She complains of tingling around her mouth and in the fingers . She consents to an arterial blood gas (on air) :</p> <p>pH = 7.49 pCO<sub>2</sub> = 2.4 pO<sub>2</sub> = 15.5 HCO<sub>3</sub> = 12 o<sub>2</sub> sats = 96%</p> <p>The most important next step is :</p> <p>Options</p> <p>A. CT pulmonary angiogram B. Psychiatric Referral C. Toxicology Screen D. Nebulised salbutamol E. Chest Radiograph</p>	<p>No.: 67</p> <p><b>C</b></p> <p>The blood gas shows a respiratory alkalosis (consistent with PE, hyperventilation, asthma, etc...) but in the presence of a low bicarbonate, i.e. concomitant metabolic acidosis. The diagnosis is therefore salicylate poisoning .</p> <p>Fatal dose in adults = 10-30g Causes activation of respiratory centre in medulla, leading to respiratory alkalosis. Simultaneous interference with cellular metabolism leads to metabolic acidosis (with wide anion gap).</p>
<p>No.: 68</p> <p>A 45-year-old homosexual Caucasian man presents to his GP with severe arthralgia and fever. The GP notes areas of raised erythema over the ankles. He is a sexually active with multiple partners .</p> <p>The chest x-ray shows bilateral hilar lymphadenopathy</p> <p>What is the appropriate treatment?</p> <p>Options</p> <p>A. Septrin B. Steroids C. Paracetamol D. Rifampacin and Isoniazid E. Steroids and Azathioprine</p>	<p>No.: 68</p> <p><b>C L.S</b></p> <p>Acute onset of fever, arthralgia, erythema nodosum and BHL on CXR = Lofgren's syndrome (acute sarcoidosis) .</p> <p>Occurs most commonly in Caucasians and prognosis excellent without treatment (80% resolve within 2 years on no treatment). Development of chronic lung / extrapulmonary involvement uncommon .</p> <p>Correct treatment at this early stage is symptomatic only. Indications for steroids in sarcoidosis as follows :</p> <ul style="list-style-type: none"> <li>• HyperCa<sup>2+</sup> +</li> <li>• Ocular</li> <li>• Cardiac</li> <li>• Neurological</li> <li>• Progressive lung disease</li> <li>• Skin infiltration</li> <li>• Severe systemic symptoms</li> </ul>

No.: 69



A married couple presents to their GP with infertility. On questioning, the 25-year-old husband admits to frequent episodes of bronchitis and troublesome sinusitis, both of which usually settles with antibiotics. The GP ordered an x-ray .

What is the best test to reach a diagnosis?

Options

- A. High resolution CT chest
- B. Aspergillus Precipitins
- C. Bronchoscopy
- D. Nasociliary Biopsy
- E. Methacholine challenge test

No.: 69

D

Male infertility in association with chronic bronchitis suggests a ciliary or mucus secretory problem (cystic fibrosis, primary ciliary dyskinesia (PCD), Young's syndrome). Situs inversus occurs in 50% of PCD cases .

Young's syndrome gives a similar clinical picture (bronchiectasis, obstructive azospermia, recurrent sinusitis) but with normal cilia. There is a primary mucus defect.

No.: 70



A 57-year-old man presented with this chest x-ray. He has a 2 month history of increasing malaise and sweats, with some weight loss. There is no history of trauma .

Thoracentesis reveals a turbid exudative fluid. Culture was negative for bacteria and mycobacteria .

White cell count of the aspirate was  $200 \times 10^6/L$  with 80% lymphocytes .

Triglyceride was elevated at  $2.5 \text{ mmol/L}$ ; cholesterol was low at  $1.1 \text{ mmol/L}$ . Cytology was not contributory .

What is the most appropriate investigation?

Options

- A. Multiple pleural biopsies (Abram's needle)
- B. Flow cytometry of the pleural fluid
- C. CT Chest for mediastinal lymphadenopathy
- D. Thoracoscopy
- E. Screening for rheumatoid arthritis

No.: 70

C

The pleural fluid characteristics are those of a chylothorax (raised triglycerides and low cholesterol). The majority of causes are traumatic (especially iatrogenic) but after this, the commonest cause is lymphoma, affecting the thoracic duct.



No.: 71



A 65-year-old man has increasing dyspnoea for 6 months. He has ischaemic heart disease and orthopnoea. He used to be a carpenter working in a factory with asbestos roofing. He enjoyed bird watching but did not keep a pet bird at home. He has no joint symptoms or skin rashes .

Investigations :

Full blood count - normal

CRP 50

Anti-nuclear antibody 1:160

ENA & Rh factor -ve

Which is the most likely diagnosis?

Options

- A. Left ventricular failure
- B. Asbestosis
- C. Cryptogenic Organising Pneumonia
- D. Cryptogenic Fibrosing Alveolitis
- E. Pulmonary Fibrosis associated with SLE

No.: 71

D

The chest x-ray shows bilateral reticular shadowing, with blurred hemidiaphragms. The heart size is relatively normal, excluding LVF .

Although the ANA is mildly raised, he does not meet the diagnostic criteria for SLE. It is common to have a weakly positive ANA in fibrosing alveolitis .

Although he worked in a factory with asbestos roofing, a very high level of asbestos exposure is required to cause asbestosis .

Cryptogenic Fibrosing Alveolitis :

Re-classified now unto Usual Interstitial Pneumonitis (UIP) and Non-specific Interstitial Pneumonitis (NSIP)

Features :

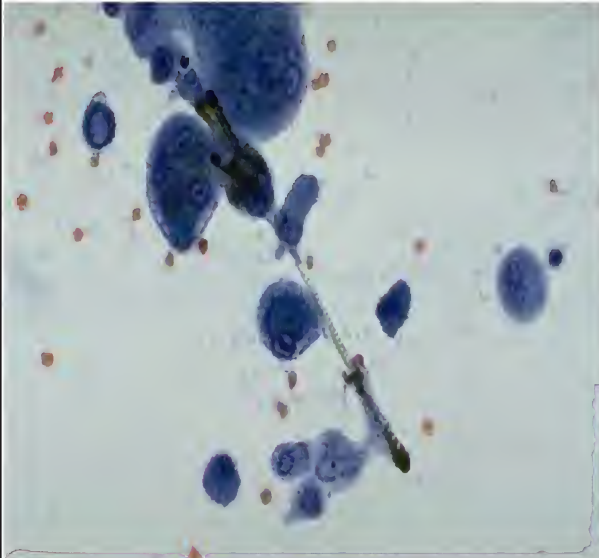
Arthralgia in 20%, clubbing 50%

Low titres RhF / ANA in absence of CTD

BAL not routinely required

Lung biopsy if radiology not convincing

No.: 72



This is a bronchoalveolar lavage sample. What should you ask in the history:

Options

- A. Coal-mining
- B. Bird-keeping
- C. Ship building
- D. Recent foreign holiday
- E. Smoking

No.: 72

C

Asbestos fibres are usually classified under two main groups: the serpentines (eg chrysotile) and the amphiboles (including crocidolites and amosite). Long, thin fibres can persist in human lungs for many years. Workers involved in asbestos mining, milling and shipping are at high risks. Asbestos is often used in insulation, and workers using end-products of asbestos (eg electricians, builders etc) are at risks of asbestos lung diseases as well. Pulmonary and pleural effects of asbestos include asbestosis, pleural plaques, diffuse pleural thickening, benign asbestos pleural effusion, mesothelioma, and increased risk of lung cancer.





No.: 73

A 49-year-old man presented with a fever and a cough productive of green sputum. His illness began three days earlier. On day two of his illness he had developed a high fever and severe pain in his left side. He was married with three teenaged children and worked as an insurance broker. He was usually fit well. He was a non-smoker and drank approximately 18 units of alcohol per week.

On examination he was febrile 38.8 °C. His pressure was 110/64 mmHg, pulse 100 beats per minute (bpm) regular with a respiratory rate of 18 breaths per minute. His heart sounds were normal. Coarse crepitations were heard at the base of his left lung.

Investigations showed :

Haemoglobin 14.0 g/dL  
 White cell count 22.2 x 10<sup>9</sup>/L  
 Neutrophils 15.9 x 10<sup>9</sup>/L  
 Platelets 480 x 10<sup>9</sup>/L  
 Serum sodium 136  
 Serum potassium 3.6  
 Serum urea 8.7  
 Serum creatinine 98 umol/L

The chest X-ray showed left lower lobar consolidation.

Which of the following features is an adverse prognostic marker in this patient?

Options Choose 1

- A. Blood pressure 105/65
- B. Chest X-ray showing left lower lobar consolidation
- C. Respiratory rate of 18 breaths per minute
- D. Serum urea 8.7 mmol/L
- E. White cell count >20.0 x 10<sup>9</sup>/L

No.: 73

A number of clinical and laboratory features indicating increased severity of pneumonia and worse prognosis are well described.

**Clinical :**

- Respiratory rate > 30 per minute
- BP < 60 diastolic or 90 systolic
- Temperature > 38.3 °C
- Extra-pulmonary involvement
- Confusion
- Age > 50
- Co-morbid conditions e.g. chronic obstructive pulmonary disease (COPD)

**Investigations :**

- Urea > 7 mmol/l
- White cell count (WCC) < 4 or > 30 x 10<sup>9</sup>/L
- pO<sub>2</sub> < 8 kPa (on air)
- Multi-lobar or cavitating disease on chest X-ray (CXR)



No.: 74

A 74-year-old man presents with a 6-month history of weakness of his lower limbs and difficulty mobilising. In addition he reports a dry mouth, urinary hesitancy and constipation. His wife says that she thinks his eyelids are drooping slightly. He has a 60-pack year smoking history. He is on no regular medications. On examination he has mild bilateral ptosis, bilateral proximal weakness of his lower limbs, reduced tendon reflexes and normal sensation. A chest X-ray shows a right hilar mass .

What is the diagnosis?

Options Choose 1

- A. Guillain-Barre syndrome
- B. Lambert-Eaton syndrome
- C. Motor neuron disease
- D. Myasthenia gravis
- E. Polymyositis

No.: 74

The dry mouth, urinary hesitancy and constipation are red herrings (as they are relatively common in this age group). However, in a man with an abnormal chest X-ray (CXR) and strong smoking history, the weakness and signs of lower motor neuron problem are strongly suggestive of Lambert-Eaton myasthenic syndrome.

No.: 75

A 34-year-old man is referred onto the chest clinic by the infertility clinic after he reported a chronic cough and recurrent chest infections since childhood. He also reported recurrent sinusitis. He is generally fit and well and works as a plumber .

Investigations show :

Sodium sweat test Normal  
 Serum IgG 7.4 g/L (NR 6-13)  
 Serum IgA 1.2 g/L (NR 0.8-3.0)  
 Serum IgM 3.1 g/L (NR 0.4-2.5)

What is the most likely diagnosis?

Options

- A. Bronchiectasis
- B. Chediak-Higashi syndrome
- C. Cystic fibrosis (CF)
- D. Primary ciliary dyskinesia
- E. Situs inversus

No.: 75

The combination of recurrent lower and upper respiratory tract infections and male infertility strongly suggests a ciliary dyskinesia syndrome .

He is too old really to have CF (particularly with a normal sweat test). Whilst he is likely to have bronchiectasis this is not the unifying diagnosis. A small proportion of patients with primary ciliary dyskinesia also have situs inversus, the combination of which is known as Kartagener's syndrome, but situs inversus itself is a purely anatomical descriptive term and is not necessarily associated with ciliary problems. Chediak-Higashi syndrome is an immuno-deficiency syndrome of childhood, unrelated to ciliary dysmotility.





No.: 76

A 40-year-old gay man not previously known to have human immunodeficiency virus (HIV) presented to hospital with a one-month history of increasing breathlessness. Chest X-ray (CXR) showed bilateral airspace shadowing consistent with pneumocystis carinii pneumonia, which was subsequently confirmed on bronchial lavage. HIV-1 infection was confirmed serologically and his CD4 count was 80 cells/mm<sup>3</sup>.

He developed a rash shortly after commencing co-trimoxazole and was switched to trimethoprim and dapsone. His condition improved within 24 h, but 5 days later he became increasingly breathless again and was centrally cyanosed. His oxygen saturations were measured at 84% by pulse oxymetry and his PaO<sub>2</sub> was 12.6 kPa.

What is the most appropriate immediate course of action?

Options

- A. Start amoxicillin/clavulanic acid
- B. Stop dapsone
- C. Start nebulised pentamidine
- D. Start prednisolone
- E. Stop trimethoprim

No.: 76

B

The patient has developed methaemoglobinaemia on dapsone therapy as evidenced by cyanosis with low O<sub>2</sub> sats but normal pO<sub>2</sub>. Dapsone needs to be stopped immediately.





No.: 77

A 46-year-old man is referred with a three-month history of dry, nocturnal cough. He is an ex-smoker having given up 5 years ago. He does not produce any sputum and has an exercise tolerance similar to his work colleagues .

He denies any other symptoms of note. Examination reveals he is 5' 10" (1.77 m) tall and weighs 100 kg (body mass index = 32 kg/m<sup>2</sup>). Chest is clear to auscultation .

Results of spirometry are shown below :

FEV1 3.5 l (Predicted 3.38 l)  
FVC 4.3 l (Predicted 4.40 l)  
FEV1/FVC 0.81 l (Predicted 0.77 l)  
PEFR 540 l/min (Predicted 559 l)

What would be the most appropriate next investigation?

Options

- A. 24 h oesophageal pH and manometry
- B. Bronchoscopy
- C. Flexible nasendoscopy
- D. Peak flow chart**
- E. Sleep studies

No.: 77

**D**

The history is strongly suggestive of asthma with nocturnal cough. Therefore a peak flow chart to assess for the variability in PEFR that is required for the diagnosis of reversible airways obstruction in asthma should be the next step.





No.: 78

A 54-year-old man presents to casualty with a two-week history of worsening breathlessness. He has an unproductive cough, occasional wheezing and has felt febrile .

## Investigations

Haemoglobin 12.8g/dl

WBC  $6.1 \times 10^9/l$ Neutrophils  $4.9 \times 10^9/l$ Lymphocytes  $0.3 \times 10^9/l$ Monocytes  $0.9 \times 10^9/l$ Platelets  $136 \times 10^9/l$ 

Sodium 138mmol/l

Potassium 3.9mmol/l

Urea 6.9mmol/l

Creatinine  $84 \mu\text{mol/l}$ 

Arterial blood gases breathing air

pH 7.45

pO<sub>2</sub> 8.5kPa (66.8mmHg)pCO<sub>2</sub> 4.3kPa (35mmHg)HCO<sub>3</sub> 24mmol/l

His chest x-ray is normal .

What is the most likely diagnosis:

Options Choose 1

A. Cytomegalovirus pneumonitis

B. Mycoplasma pneumonia

C. Pneumocystis carinii pneumonia

D. Pulmonary oedema

E. Severe acute respiratory syndrome (SARS)

No.: 78

C  
CMV, mycoplasma, pulmonary oedema and SARS would all be expected to have an abnormal CXR, whereas it is well documented that the radiological changes of PCP may be subtle.





No.: 79

A 58-year-old man who is known to smoke 20 cigarettes a day for the last 40 years is admitted with a three day history of increasing breathlessness. He has an associated cough productive of sputum. He admits to a poor oral intake since he has been unwell .

He has a history of hypertension for which he currently takes amlodipine 5mg once daily. His father died of bronchial carcinoma at the age of 63. He works as a plumber and he drinks between 2 and 4 pints of beer a night. On examination he is febrile with a temperature of 38.9oC. His respiratory rate is 26 breaths per minute. There is an area of bronchial breathing at the left base. His chest x-ray shows an area of dense consolidation in the left lower zone .

Investigations reveal :

Haemoglobin 15.2g/dl

White cell count  $3.7 \times 10^9/l$

Platelets  $115 \times 10^9/l$

Serum sodium 139mmol/l

Serum potassium 4.5mmol/l

Serum urea 13.9mmol/l

Serum creatinine 150umol/l

Which one of the following is not associated with a worse prognosis in community acquired pneumonia:

Options Choose 1

- A. Total white cell count of less than  $4 \times 10^9/l$
- B. Serum urea of greater than 7mmol/l
- C. Multilobar involvement on chest x-ray
- D. Platelet count of less than  $100 \times 10^9/l$
- E. Temperature greater than 40oC

No.: 79

D

A number of clinical and laboratory features indicating increased severity of pneumonia and worse prognosis are well described. This is a common exam topic .

**Clinical:**

- Respiratory rate  $> 30$  per minute
- BP  $< 60$  diastolic or 90 systolic
- Temperature  $> 38.3^\circ\text{C}$
- Extra-pulmonary involvement
- Confusion
- Age  $> 50$
- Co-morbid conditions e.g. chronic obstructive pulmonary disease (COPD)

**Investigations:**

- Urea  $> 7\text{mmol/l}$
- White cell count (WCC)  $< 4$  or  $> 30 \times 10^9/L$
- $\text{pO}_2 < 8\text{kPa}$  (on air)
- Multi-lobar or cavitating disease on chest X-ray (CXR)





No.: 80

A 66-year-old lady was seen in the outpatient department with a 6-month history of increasing breathlessness on exertion. Her exercise tolerance was limited to 100 metres on the flat and she had started to become breathless walking up the stairs in her house. She slept with four pillows and had noticed some swelling of both her ankles. She had a cough, which was occasionally productive of sputum. She had given up smoking when she first noticed her dyspnoea and had a 40-pack year smoking history. She was known to have hypertension and ischaemic heart disease and had coronary artery stenting 12 months ago .

Pulmonary function testing revealed :

FEV1 0.88 L (1.80 ♦ 3.02 predicted)

FVC 1.90 L (2.16 ♦ 3.58 predicted)

Diffusion capacity 2.40 mmol/min/kPa (5.91 ♦ 9.65 predicted)

Total lung capacity 4.40 L (4.25 ♦ 6.22 predicted)

Residual volume 2.69 L (1.46 ♦ 2.48 predicted)

What is the most likely diagnosis?

Options Choose 1

- A. Asthma
- B. Chronic obstructive pulmonary disease
- C. Cryptogenic fibrosing alveolitis
- D. Left ventricular failure
- E. Sarcoidosis

No.: 80

B

Her pulmonary function tests (PFT ♦s) show a clearly obstructive pattern. With her smoking history, this is most likely to be chronic obstructive pulmonary disease (COPD) despite her cardiac history. Orthopnoea is very common in patients with COPD and is not specific for LVF.





No.: 81

A 33-year-old man with known AIDS was admitted with a 2 month history of weight loss of 12 kilograms, diarrhoea 6 times a day (no blood) and right upper quadrantic abdominal pain. He has had two episodes of *Pneumocystis carinii* pneumonia, one requiring admission to ITU and mechanical ventilation 8 months ago. He takes HAART and codeine phosphate. He and his partner have been together for 3 years. He does not smoke or drink. On examination he is thin, afebrile, but looks unwell. Examination of his cardiovascular examination is normal. He has some sparse crackles at both lung bases. On examination of his abdomen, he has some tenderness in the right hypochondrium. Murphy's sign is negative. Neurological examination is negative. He has some early haemorrhagic regions in the left fundus. Investigations: FBC: Hb 10.4 WCC 6.7 platelets 80 MCV 102 CD4 40 U&E Normal LFT Alk Phos 290 Bilirubin 65 ALT 20 cGT 32 CXR linear streaky basal shadows. Suggest a likely diagnosis:

Options

- A. *Mycobacterium avium intracellulare*
- B. *Pneumocystis carinii* pneumonia
- C. Systemic cytomegalovirus infection
- D. Sclerosing cholangitis
- E. Microsporidiosis

No.: 81

C  
This man has CMV until proven otherwise. The fundi are the most important problem - remember the mash potatoes and cream appearance. IV therapy is still first line (at least 10 days). The liver function does suggest a cholestatic pattern, and sclerosing cholangitis is well recognised. Crypto- and microsporidia are very common causes of diarrhoea in AIDS and must be looked for. His chest signs stem from two recent pneumonic illnesses.

No.: 82

A 65-year-old man with a 50 pack-year smoking history presents with a chronic cough, haemoptysis and weight loss. His chest x-ray shows a cavitating lesion. What is the most likely diagnosis :

Options

- A. Adenocarcinoma
- B. Alveolar cell carcinoma
- C. Large cell carcinoma
- D. Small cell carcinoma
- E. Squamous cell carcinoma

No.: 82

E  
Squamous cell carcinomas can present as cavitating lung lesions on chest x-ray. Other causes of cavitating lung lesions include lung abscesses (eg from *Staphylococcus aureus*, tuberculosis, *Klebsiella*, *Pneumocystis carinii*), pulmonary infarcts, Wegener's Granulomatosis and rheumatoid nodules.



<p>No.: 83</p> <p>A 16-year-old woman was admitted short of breath. These were her blood gases :</p> <p>pH 7.49 pCO<sub>2</sub> 2.4 pO<sub>2</sub> 15.5 HCO<sub>3</sub> 12 O<sub>2</sub> Sats 96%</p> <p>What is the likely underlying cause? :</p> <p>Options</p> <p>A. Pulmonary embolus B. Anxiety C. Aspirin poisoning D. Asthma E. Pneumothorax</p>	<p>No.: 83</p> <p>C</p> <p>Respiratory alkalosis, and a very low bicarbonate . Implies a concurrent metabolic acidosis . Chronic respiratory alkalosis would have a low bicarbonate 17-19ish</p>
<p>No.: 84</p> <p>A 67-year-old heterosexual, lifelong nonsmoker, carpenter presents with 3-week history of minimally productive cough, fever and 9-kg weight loss. He was treated with oral amoxicillin and clarithromycin for 7 days by his GP without symptomatic improvement. He was not on any other medications and had no history of foreign travel, TB or avian exposure .</p> <p>His vital signs were as follows: temperature 38°C, heart rate 96 bpm regular, blood pressure 100/65 mmHg, respiratory rate 18, SpO<sub>2</sub> 94% on air. Physical examination was unremarkable apart from stony dullness and reduced breath sounds bibasally. His chest x-ray does not show cardiomegaly but confirms bilateral pleural effusions, larger on the left. You perform the pleural fluid aspiration which reveals serosanguinous fluid with pH 7.6, glucose 5 mmol/L, protein 36 g/L, LDH 400 U/L. Negative for acid fast bacilli, MC&amp;S. Cytology reveals predominant lymphocytosis .</p> <p>What test would you request next:</p> <p>Options</p> <p>A. CT thorax with pleural biopsy and flow cytometry of pleural fluid B. Pleural biopsy for mycobacterial culture C. Autoantibody screen D. Repeat pleural fluid aspiration and also send for adenine deaminase E. Abrams pleural biopsy</p>	<p>No.: 84</p> <p>A</p> <p>The pleural fluid predominantly lymphocytic exudates, the pH and glucose level exclude TB and rheumatological related effusion. Lymphoma is the likely diagnosis. A staging CT of the thorax may reveal mediastinal/hilar lymphadenopathy, early features of superior vena cava obstruction, pleural enhancement or consolidative changes which may represent lymphoma. CT guided biopsy can specifically target affected areas of the pleura. Flow cytometry of the pleural fluid can define the lymphocyte population, i.e., whether it is predominantly B cells, CD4 positive or CD8 positive T cells. Studies of T-cell receptor gene rearrangements can define a monoclonal or polyclonal lymphocyte population.</p>



No.: 85

A 32-year-old cleaner presents to A&E with a complete left sided pneumothorax. She gives no history of trauma and smokes 30 cigarettes/day since she was 18 years old. She was treated with a chest drain. Her repeat chest x-ray shows complete re-expansion of the lung, well preserved lung volumes, extensive bilateral cystic nodules and reticulonodular shadowing predominantly in the upper and middle zones with sparing of the costophrenic angles .

What is the most likely diagnosis:

Options

- A. Langerhan's cell histiocytosis
- B. Pneumocystis jierovecii
- C. Sarcoidosis
- D. Lymphangioleiomyomatosis (LAM)
- E. Bullous emphysema due to alpha 1 anti-trypsin deficiency

No.: 85

**A** Langerhan's cell histiocytosis (LCH) is an uncommon disease (prevalence 0.27 – 0.07/ 100,000) of unknown aetiology affecting the dendritic cell. It is more common in young (ages 20-40 years) smokers, with an equal male and female predominance. Pulmonary manifestations include exertional dyspnoea (35-87%), non-productive cough (50-70%), pneumothorax (20%, more common in males) and chest pain from a rib lesion. Haemoptysis and clubbing are rare and alternative diagnosis should be considered in these smokers. LCH is confirmed immunohistologically, CD1a antigen on the surface of cells .

Extra-pulmonary clinical features include constitutional symptoms, bone pain from lytic lesions and diabetes insipidus due to hypothalamo-pituitary involvement (5%) .

%25of patients are asymptomatic and diagnosed on CXR done for other reasons. Radiological features are characteristic :

- ☐ bilateral, symmetrical upper & middle zones involvement with sparing of the lower zone and costophrenic angles
- ☐ preserved lung volumes
- ☐ progression from nodules (often cavitated), reticulonodular to well defined thin and thick walled cystic lesions (the cystic lesions in LAM are irregular)
- ☐ prominent pulmonary arteries due to pulmonary hypertension
- ☐ pleural effusion is uncommon and should point to alternative diagnosis
- ☐ lytic rib lesions can sometimes be seen

Although LAM is a possibility, as it is more frequent in young females, the smoking history and radiological features go against this diagnosis.



No.: 86



This is a chest radiograph of a 45-year-old female with exertional dyspnoea and a cough productive of sputum .  
What is the diagnosis?

Options

- A. Pulmonary fibrosis
- B. Pulmonary abscesses
- C. Bronchiectasis
- D. Cavitating metastases
- E. Pneumatocoeles

No.: 86

C

Findings: The chest radiograph demonstrates cystic bronchiectasis with lung hyperinflation. Multiple cystic bronchiectatic cavities are seen with fluid (pus) levels in them .

In bronchiectasis the chest radiograph may be normal or show bronchial wall thickening appearing like tramlines, cystic spaces with fluid levels and compensatory hyperinflation .

Computed tomography (CT) is the modality of choice for the diagnosis of bronchiectasis using a high resolution CT (HRCT) protocol is now performed with 1-2mm slices taken at intervals through the lungs. The features of bronchiectasis on HRCT are :

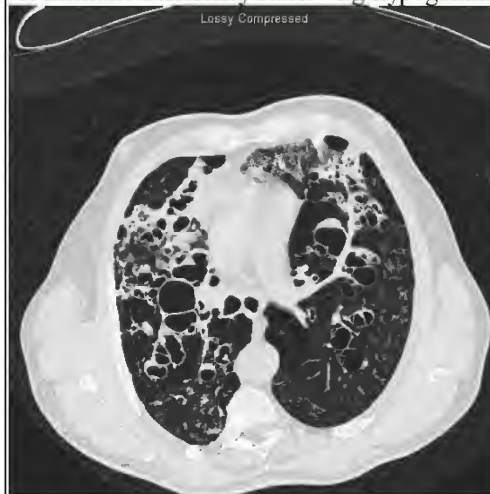
- .1Dilated bronchi with thickened walls such that they are bigger than their accompanying pulmonary artery, known as the signet ring sign .
- .2Crowding of the dilated bronchi .
- .3Mucus plugging and fluid levels within the bronchi. In this patient the scan has been performed in the prone position, hence the appearance of the fluid levels .
- .4Bronchi seen in the peripheral one third of the lung, where they are not normally seen, reflecting bronchial wall thickening and dilatation .

Causes of bronchiectasis :

Localised: Lobar collapse resulting from inhaled foreign body, inhalational pneumonia, tuberculosis or bronchial carcinoma .

Generalised:

- .1Childhood infections: whooping cough, measles or bronchiolitis .
- .2Cystic fibrosis
- .3Congenital structural defects: Kartagener's syndrome (bronchiectasis with immotile cilia, dextrocardia or situs inversus and sinusitis) or Williams-Campbell syndrome (bronchial cartilage deficiency) .
- .4Allergic bronchopulmonary aspergillosis (proximal bronchiectasis) .
- 5. Immune deficiency states- e.g hypogammaglobulinaemia.





No.: 87

A 35-year-old Caucasian male presents with a 2-month history of exertional dyspnoea, exercise tolerance is now limited to 50 yards, previously this was unlimited. He has marked weight loss of 3 stone, night sweats and fevers, non-productive cough but no chest pain or haemoptysis. He has always been healthy and never smoked. He works with his father as a sandblaster and has no foreign travel history or avian exposure. His father is asymptomatic. His CXR shows extensive bilateral fibrosis in the upper zones and pulmonary reticulonodular shadowing .

What initial test would you do to confirm the diagnosis:

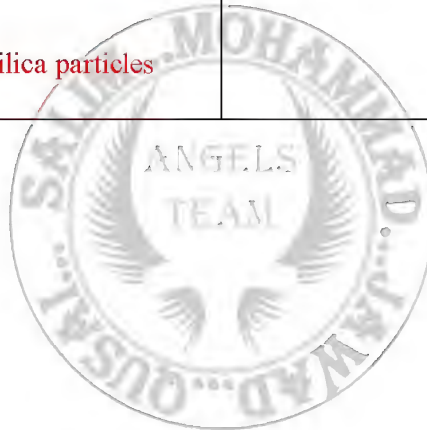
Options

- A. Sputum for acid fast bacilli
- B. Lung function tests
- C. HLA B27 test
- D. High resolution CT of the thorax
- E. Transbronchial biopsy looking for silica particles

No.: 87

A

Sputum culture is a quick, non-invasive, cheap test in any patient suspected of open tuberculosis (TB). If sputum is repeatedly negative but TB is still clinically suspected, a large amount of information can be obtained from a transbronchial biopsy, however, this is invasive and there is an increased risk of pneumothorax. An high resolution computed tomography (HRCT) is non-invasive but exposes the patient to radiation and may not be sensitive or specific enough.





No.: 88

A 32-year-old cleaner presents to A&E with a complete left sided pneumothorax. She gives no history of trauma and smokes 30 cigarettes/day since she was 18 years old. She was treated with a chest drain. Her repeat chest x-ray shows complete re-expansion of the lung, well preserved lung volumes, extensive bilateral cystic nodules and reticulonodular shadowing predominantly in the upper and middle zones with sparing of the costophrenic angles .

What advice/treatment is recommended to this patient:

Options

- A. Prednisolone 30 mg od for 3 months then tapering regime
- B. Bronchodilators
- C. Smoking cessation
- D. Lung transplant
- E. 2-chlorodeoxyadenosine (cladribine)

No.: 88

Although the natural history of the disease is variable and unpredictable in individual patients, smoking cessation is mandatory. More than 98% of patients with pulmonary Langerhans cell histiocytosis (PLCH) are smokers, resolution of the disease after smoking cessation has been reported .

%5of patients have severe manifestations (i.e recurrent pneumothorax, progressive respiratory failure with chronic cor pulmonale) and 30-40% of patients show persistent symptoms of variable severity, with conversion of radiological nodules into thick-walled and then thin-walled cysts .

Steroids are generally not recommended as they do not alter the course of the disease and are associated with significant side effects. Glucocorticoid therapy attenuates the constitutional symptoms and is advocated on empirical grounds in the treatment of recent onset symptomatic nodular LCH, i.e., 0.5-1 mg/kg tapered over 6-12 months. Although glucocorticoid therapy may be associated with resolution of the symptoms and radiological abnormalities, significant improvement in pulmonary function tests is not seen. Expert advice should be sought before starting steroids .

Bronchodilator therapy should be used in patients showing obstructive lung function tests with reversibility, this is due to smoking related pathology .

Lung transplantation is reserved for patients with severe lung pathology, however LCH can occur in the transplanted lung .

2-chlorodeoxyadenosine (cladribine) is a cytotoxic agent in phase 2 clinical trials, initial results in LCH are encouraging.





<p>No.: 89</p> <p>A 35-year-old Caucasian male presents with a 2-month history of exertional dyspnoea, exercise tolerance is now limited to 50 yards, previously this was unlimited. He has marked weight loss of 3 stones, night sweats and fevers, non-productive cough but no chest pain or haemoptysis. He has always been healthy and never smoked. He works with his father as a sandblaster and has no foreign travel history or avian exposure. His father is asymptomatic. His CXR shows extensive bilateral fibrosis in the upper zones and pulmonary reticulonodular shadowing .</p> <p>What initial test would you do to confirm the diagnosis:</p> <p>Options</p> <p>A. Sputum for acid fast bacilli B. Lung function tests C. HLA B27 test D. High resolution CT of the thorax E. Transbronchial biopsy looking for silica particles</p>	<p>No.: 89</p> <p>A</p> <p>Sputum culture is a quick, noninvasive, cheap test in any patient suspected of open tuberculosis (TB). If sputum is repeatedly negative but TB is still clinically suspected, a large amount of information can be obtained from a transbronchial biopsy, however, this is invasive and there is an increased risk of pneumothorax. An high resolution computed tomography (HRCT) is noninvasive but exposes the patient to radiation and may not be sensitive or specific enough.</p>
<p>No.: 90</p> <p>Which of the following is not a complication of bronchiectasis:</p> <p>Options</p> <p>A. Metastatic brain abscess B. Amyloidosis C. Hypogammaglobinemia D. Cor pulmonale E. Pneumothorax</p>	<p>No.: 90</p> <p>C</p> <p>Bronchiectasis is due to abnormal irreversible dilatation of the bronchi caused by abnormal defense against respiratory pathogen due to immunoglobulin deficiency, impaired mucociliary clearance or bronchial obstruction. CT of the lungs shows bronchial dilatation and thickening and may show classic "signet" ring appearance (due to enlarged bronchus and neighbouring vessel) .</p> <p>Rarely bronchiectasis is seen in rheumatoid arthritis, Crohn's disease, ulcerative colitis, chronic aspiration, and <math>\alpha 1</math> anti-trypsin deficiency. Other complications of bronchiectasis include life threatening haemoptysis, recurrent pneumonia, empyema and lung abscess.</p>





<p>No.: 91</p> <p>A 65-year-old man presents with a 3-week history of progressive proximal weakness and difficulties with swallowing. He smoked 40 cigarettes/day since age 16 years but stopped 3 weeks ago. His chest x-ray shows a slightly widened superior mediastinum and hilar lymphadenopathy .</p> <p>What is the aetiology of his symptoms:</p> <p>Options</p> <p>A. IgG autoantibody to acetylcholine receptor proteins  B. IgG autoantibody to post synaptic voltage gated calcium channels  C. Myasthenia gravis with thymic hyperplasia  D. Lymphoma  E. Small cell lung cancer</p>	<p>No.: 91</p> <p>Lambert-Eaton syndrome is a rare non-metastatic manifestation of small cell lung cancer (SCLC). It results in proximal muscle weakness, ocular and bulbar muscle weakness and absent tendon reflexes which become present after repetitive forced contraction (this is opposite of what is seen in myasthenia gravis). It is strongly associated with small cell lung cancer. Autoantibodies to pre-synaptic voltage gated channels are present in 90% of patients and may precede the clinical appearance of the tumour. Primary treatment is directed at the tumor, however 3,4-diaminopyridine is used in treatment with variable success .</p> <p>Although myasthenia gravis with associated thymic hyperplasia could account for this presentation, thymic hyperplasia is more common in younger patients (seen in 70%) and the heavy smoking history in this patient makes SCLC more likely. Myasthenia is associated with other autoimmune conditions including thyroid disease, rheumatoid arthritis, systemic lupus erythematosus (SLE) and pernicious anemia</p>
<p>No.: 92</p> <p>Which of the following does not a cause of a predominantly lymphocytic pleural effusion:</p> <p>Options</p> <p>A. Post coronary artery bypass graft (CABG)  B. Rheumatoid arthritis  C. Legionella pneumonia  D. Tuberculosis  E. Sodium valproate</p>	<p>No.: 92</p> <p>A parapneumonic effusion secondary to Legionella pneumonia is neutrophil predominant. The remaining options all result to lymphocyte predominant effusions. The pleural fluid pH and glucose levels can help further differentiate the possibilities. Rheumatoid effusions are more common in males with seropositive rheumatoid arthritis.</p>



<p>No.: 93</p> <p>A 67-year-old heterosexual, lifelong nonsmoker, carpenter presents with 3-week history of minimally productive cough, fever and 9-kg weight loss. He was treated with seven oral amoxicillin and clarithromycin for 6 days by his GP without symptomatic improvement. He was not on any other medications and had no history of foreign travel, TB or avian exposure. His vital signs were as follows: temperature 38°C, heart rate 96 bpm regular, blood pressure 100/65 mmHg, respiratory rate 18, SpO<sub>2</sub> 94% on room air. Physical examination was unremarkable apart from stony dullness and reduced breath sounds bibasally. His chest x-ray does not show cardiomegaly but confirms bilateral pleural effusions, larger on the left .</p> <p>Which of the following tests will help establish a diagnosis:</p> <p>Options</p> <p>A. Urine legionella and pneumococcal antigen B. Sputum for cytology C. Sputum for microbiology, sensitivity and culture and acid fast bacilli D. Pleural fluid aspiration E. Pleural biopsy</p>	<p>No.: 93</p> <p><b>D</b></p> <p>The pleural fluid aspiration of 50mL sent for pH, protein, glucose, LDH, cytology and MC &amp; S will provide a good starting point towards establishing a diagnosis. Pleural biopsy is a relatively invasive procedure and should not be attempted blindly as the risk of complications is high in inexperienced hands and poor yield due to the patchiness of the disease.</p>
<p>No.: 94</p> <p>A 72-year-old retired postman with 200-pack-year history of smoking presents with stridor, elevated fixed jugular venous pressure and dilated anterior chest wall veins. He looks unkempt, cachectic and is clubbed with tar stained finger nails .</p> <p>What would you do next:</p> <p>Options</p> <p>A. Start dexamethasone after CT thorax . B. Start dexamethasone immediately . C. Contact palliative care team . D. Arrange angiogram and stenting . E. Arrange bronchoscopy to stent airway.</p>	<p>No.: 94</p> <p><b>B</b></p> <p>This patient has superior vena cava obstruction (SVCO) probably due to a large central lung tumour in view of his extensive smoking history. Dexamethasone will reduce swelling around the tumour and relieve pressure effects. In patients where lymphoma is considered, histological confirmation should be obtained before dexamethasone is started. The palliative care team should be contacted next as the prognosis in patients presenting with SVCO is poor despite treatment.</p>



<p>No.: 1</p> <p>A 68-year-old man presents with jaundice, weight loss and pruritis. He has dark urine and clay like stools. Fasting Ultrasound reveals an empty gallbladder and intrahepatic duct dilatation. What is the most likely diagnosis :</p> <p>Options</p> <p>A. Carcinoma of the head of the pancreas B. Gastrinoma of the head of the pancreas C. Cystic duct gall stone impaction D. Cholangiocarcinoma of the left main bile duct E. Lymphadenopathy at the porta hepatis</p>	<p>No.: 1</p> <p>D</p> <p>This woman's age and lack of weight loss suggests a benign cause for her dysphagia. The normal full blood count rules out Plummer-Vinson, the presence of an oesophageal web and iron deficiency anaemia. Peptic strictures cause gradual onset dysphagia to solids and then to liquids and would be rare in someone with few reflux symptoms. Achalasia, the failure of relaxation of the lower oesophageal sphincter, causes rapid-onset dysphagia to both solids and liquids. The oesophagus becomes dilated, resulting in pooling of food. Diagnosis is made based on endoscopic features, a barium swallow, the rats tail appearance and manometry of the sphincter showing its failing to relax. Treatment options are: Balloon dilatation, botulinum toxin injections or a laparoscopic Heller's myotomy.</p>
<p>No.: 2</p> <p>A 68-year-old man presents with jaundice, weight loss and pruritis. He has dark urine and clay like stools. Fasting Ultrasound reveals an empty gallbladder and intrahepatic duct dilatation. What is the most likely diagnosis :</p> <p>Options</p> <p>A. Carcinoma of the head of the pancreas B. Gastrinoma of the head of the pancreas C. Cystic duct gall stone impaction D. Cholangiocarcinoma of the left main bile duct E. Lymphadenopathy at the porta hepatis</p>	<p>No.: 2</p> <p>E</p> <p>This question requires a knowledge of anatomy and nothing more! For the gallbladder to be empty, the obstruction must be higher than the point of entry of the cystic duct to the common bile duct. For there to be left and right intrahepatic duct dilatation, the obstruction must be at or below the bifurcation of the left and right bile ducts. Therefore only E could cause the findings.</p>





<p>No.: 3</p> <p>A female patient with anaemia is referred for investigation .</p> <p>FBC :</p> <p>Hb 10.1</p> <p>WCC 7 x 10<sup>9</sup></p> <p>Platelets 190</p> <p>Blood film: macrocytosis and hypersegmented neutrophils</p> <p>Schilling Test :</p> <p>Pre-intrinsic factor 3%</p> <p>B12 isotope excreted in urine</p> <p>Post intrinsic factor 78%</p> <p>B12 isotope excreted</p> <p>What further test would you carry out:</p> <p>Options</p> <p>A. Barium meal and follow through</p> <p>B. Colonoscopy and terminal ileoscopy</p> <p>C. Gastroscopy and gastric biopsy</p> <p>D. Duodenal biopsy</p> <p>E. Anti-parietal cell and intrinsic factor antibodies</p>	<p>No.: 3</p> <p>E</p> <p>The Schilling test indicates abnormal B12 absorption (&lt;10% of ingested dose) corrected by intrinsic factor. This is strongly suggestive of a failure of intrinsic factor synthesis (either due to gastrectomy or pernicious anaemia). Positive autoantibody testing would support the pernicious anaemia diagnosis.</p>
<p>No.: 4</p> <p>A previously well 68-year-old man presents with jaundice dark urine and pale stools .</p> <p>Bilirubin 120</p> <p>AST 30</p> <p>Alk phos 910</p> <p>Alb 35</p> <p>GGT 138</p> <p>T. protein 68</p> <p>U/S: Normal liver, a collapsed gallbladder with no stones normal cystic duct and common bile duct, dilated intra- hepatic ducts .</p> <p>Which of the following is the most likely diagnosis :</p> <p>Options</p> <p>A. Primary biliary cirrhosis</p> <p>B. Cholangiocarcinoma</p> <p>C. Hepatocellular carcinoma</p> <p>D. Cholelithiasis</p> <p>E. Carcinoma of the head of the pancreas</p>	<p>No.: 4</p> <p>NOT AVAILABLE</p> <p>The fact that the gallbladder is empty suggests an obstruction above the cystic duct. The dilatation of bile ducts in both lobes of the liver tells you that the obstruction is at or below the bifurcation. The possibilities are a cholangiocarcinoma or external compression of the porta hepatitis (usually by lymph nodes).</p>



No.: 5

A 65-year-old man is referred with abnormal liver function and undergoes a liver biopsy. Which of the following count against hepatic cirrhosis:

Options

- A. Nodular regeneration
- B. Fibrous septa formation
- C. Liver cell necrosis
- D. Granuloma formation
- E. Subendothelial fibrosis

No.: 5

NOT AVAILABLE

Granuloma formation is not classically seen in cirrhosis, which can be micro or macronodular in type. In the micronodular form, the nodules are less than 3mm across with uniform liver involvement - seen in alcohol or biliary disease. In the macronodular form, there are larger nodules, classically seen in chronic viral hepatitis.

No.: 6



A 17-year-old Asian girl c/o intermittent abdominal pain, fevers and severe weight loss. A barium follow through is performed. What is the most likely diagnosis:

Options

- A. Crohn's disease
- B. Tuberculosis (TB)
- C. Lymphoma
- D. Jejunal diverticulosis
- E. Bacterial overgrowth

No.: 6

NOT AVAILABLE

The barium follow through shows distal areas of ulceration consistent with Crohn's disease, making this the most likely diagnosis.

No.: 7



This 30-year-old travel agent came to A&E c/o diarrhoea 10x per day mixed with blood. She had just returned from her holiday in Kenya. Her pulse was 110b/min and temperature 37.5. Her C-reactive protein (CRP) was 70g/L and Hb 9.8g/dl. Her rigid sigmoidoscopy is shown. What would you do next:

## Options

- A. Send off blood and stool for culture
- B. Send off blood and stool cultures and start steroids and get an abdominal X-ray
- C. Book an urgent colonoscopy
- D. Get an abdominal X-ray
- E. Send off a hot stool sample

No.: 7

B

This lady has a severe acute attack of colitis. Definition of a severe attack of ulcerative colitis (UC) is stool frequency >6 per day with blood, fever >37.5C, tachycardia >90 BPM, ESR >30mm/hr, haemoglobin <10g/dl, albumin <30g/l. Clearly with the history of foreign travel it is important to exclude an infective cause with blood and stool cultures, but she is a travel agent and would be expected to choose establishments where GI infection is less likely and be streetwise. Mean age at first presentation of UC is 34 years. Full colonoscopy is not recommended during an acute attack due to the risk of perforation.

No.: 8



This 58-year-old lady had longstanding intermittent reflux symptoms treated with occasional proton pump inhibitors (PPIs). What would you advise:

Options

- A. To continue same Rx and seek medical attention if there is a change in symptoms
- B. Regular PPI and endoscopies
- C. Antacids when symptomatic
- D. Referral to a surgeon
- E. Referral back to endoscopist for ablative therapy

No.: 8

B

This lady has Barrett's oesophagus, with extension of gastric type columnar epithelium up into the oesophagus where it replaces normal squamous type mucosa. It may be seen as a continual sheet of change (as in this case), finger type projections, or islands of mucosa. The condition is premalignant for adenocarcinoma of the oesophagus. Recommended practice is for surveillance endoscopy 6 monthly with intensive PPI therapy as the condition is thought to be originally derived from chronic reflux. Biopsy is necessary from all 4 quadrants of the oesophagus every 2cm. In the case of high-grade dysplasia ablative therapy may be used or the patient may be offered oesophagectomy.

No.: 9



An 88-year-old Asian gentleman with a past history of ischaemic heart disease (IHD) and femoral-popliteal bypass presented to A&E with a one-week history of diarrhoea. His GP had given him a course of antibiotics 2 weeks ago for chest infection. A rigid sigmoidoscopy shows this lesion in the rectum. What investigation would you request next:

Options

- A. Biopsy
- B. Angiogram
- C. Colonoscopy
- D. Stool culture and microscopy
- E. Stools for clostridium difficile toxin

No.: 9

E

This picture appears to show a yellowish pseudomembrane, evidence of haemorrhage and some loss of the normal vascular arcades. With the history of diarrhoea occurring in such close proximity to a course of antibiotics then the most likely cause is clostridium infection. Common antibiotic culprits include the cephalosporins and Augmentin, but the responsible organism is ubiquitous in many elderly people's homes and is not an uncommon cause of infections in the elderly. Treatment is with a course of metronidazole or vancomycin antibiotic therapy.





No.: 10



This 28-year-old accountant complains of retrosternal pain. How would you treat him?

Options

- A. Regular antacids
- B. Therapeutic dose of H2 receptor antagonist for 8 weeks
- C. Therapeutic dose of PPI for 8 weeks then maintenance dose
- D. Prokinetic for 8 weeks
- E. Refer for surgery

No.: 10

C

This patient has evidence of reflux oesophagitis easily visible on endoscopy. The gold standard therapy is PPI, H2 receptor antagonists and antacids have much lower success rates at 8 weeks. Since the withdrawal of cisapride there are now no prokinetic agents available. Surgery might be an option eventually but certainly not at this stage and only after further investigations including pH monitoring .

It is not clearly documented what the long-term risks of reflux disease are but up to 20% of patients undergoing endoscopy for reflux have Barrett's oesophagus, and are 8 times more likely than patients without reflux to suffer oesophageal adenocarcinoma.



No.: 11



A 44-year-old woman presents with sudden onset dysphagia to solids and liquids with regurgitation of food. What is the diagnosis :

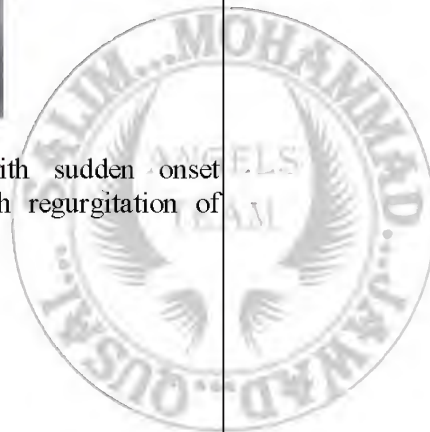
Options

- A. Oesophageal carcinoma
- B. Plummer-Vinson Syndrome
- C. Oesophageal candidiasis
- D. Non-Hodgkins lymphoma
- E. Achalasia

No.: 11

E

There is the classical rats tail appearance of achalasia on this barium swallow.



No.: 12



An 86-year-old man presents with dysphagia. What is the radiological diagnosis :

Options

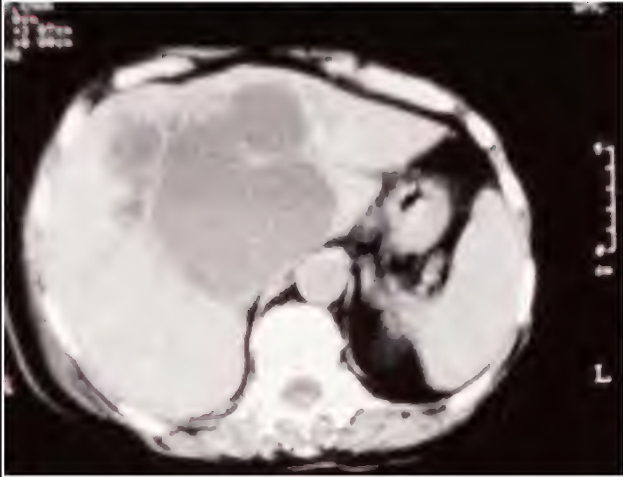
- A. Patterson-Kelly syndrome
- B. Oesophageal diverticulum
- C. Oesophageal carcinoma
- D. Reflux oesophagitis
- E. Pharyngeal pouch

No.: 12

E

There is a posterior pharyngeal pouch shown on the barium swallow

No.: 13



A 61-year-old woman presents with jaundice, abnormal liver function tests and ascites. She has had longstanding ulcerative colitis managed with mesalazine, intermittent oral prednisolone and azathioprine. What is the diagnosis :

Options

- A. Primary hepatocellular carcinoma
- B. Dilated intra-hepatic bile ducts
- C. Metastatic carcinoma
- D. Dilated Common bile duct
- E. Cholangiocarcinoma

No.: 13

E

Primary sclerosing cholangitis and as a result, cholangiocarcinoma, are associated with ulcerative colitis. Metastatic carcinoma from a colorectal primary is another possibility, but this is a single large mass rather than multiple cannonball lesions.





No.: 14



A 56-year-old man with ulcerative colitis develops abnormal liver function tests. He is then admitted due to right hypochondrial pain and a fever with a bilirubin of 343. He has a failed ERCP so a percutaneous transhepatic cholangiogram is carried out. What is the diagnosis :

Options

- A. Primary Biliary cirrhosis
- B. Secondary Biliary Cirrhosis
- C. Primary sclerosing cholangitis
- D. Cholangiocarcinoma
- E. Carcinoma of the head of the pancreas

No.: 14

C

There is the classical beaded effect with multiple bile duct strictures, one of which is dominant and causing obstruction and cholangitis.

No.: 15



A 34-year-old man is given septrin for a gastroenteritis.  
What complication has arisen :

Options

- A. Acute hepatitis and fulminant liver failure
- B. Erythema multiforme
- C. Steven-Johnsons syndrome
- D. Autoimmune haemolysis
- E. Erythema nodosum

No.: 15

C

There is mucous membrane involvement with erythema multiforme.



No.: 16



This 55-year-old man was admitted with diarrhoea. What is the cause :

Options

- A. Salmonella infection
- B. Coeliac disease
- C. Crohn's disease
- D. Colorectal carcinoma
- E. Diverticulosis

No.: 16

C

He has ankylosing spondylitis which is associated with Crohn's and Ulcerative colitis.





No.: 17

A 56-year-old woman with diverticular disease and anaemia is investigated .

Her blood test results reveal the following :

Hb 10.8

WCC 4.5

Platelets 121

MCV 102.2

B12 72 (120-900)

Folate 62 (3-20)

Ferritin 66 (4-120)

Blood Film: Macrocytosis and hypersegmented neutrophils(right shifted)

Schilling Test :

Oral labelled B12 secreted in urine 3%

Oral labelled B12 - Intrinsic factor 4%

What is the cause of the vitamin B12 deficiency:

Options

A. Chronic pancreatitis

B. R-binder deficiency

C. Pernicious anaemia

D. Bacterial overgrowth

E. Terminal ileal Crohn's disease

No.: 17

D

The type of anaemia is fairly apparent, however, the cause is less so. The clue comes in her diverticular disease and the elevated folate. B12 malabsorption actually occurs in this disease due to bacterial utilization of the vitamin. The bacteria synthesize folate which becomes markedly elevated.





No.: 18



Which of the following is the most likely cause in this frail 68-year-old woman with guarding and hypotension?

Options

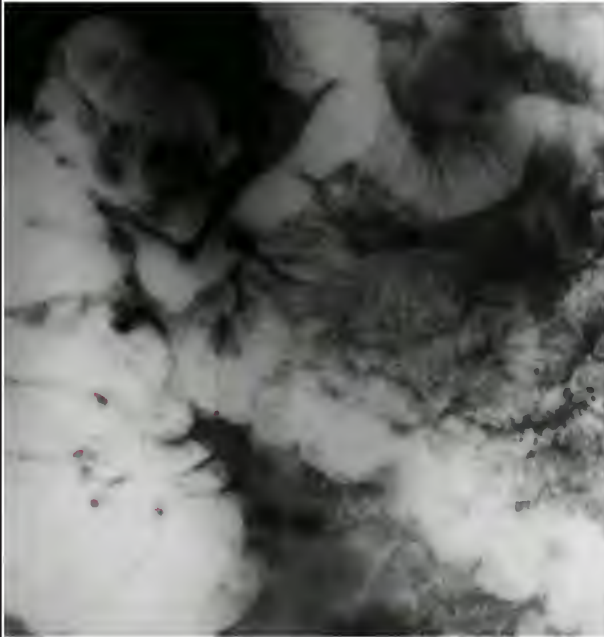
- A. Perforation of stomach carcinoma
- B. Perforation of duodenal ulcer
- C. Perforation of carcinoma descending colon
- D. Complication of nephrostomy insertion
- E. Complication of cystoscopy

No.: 18

A



No.: 19



This 19-year-old first year university student presents to the GP with mild anaemia and difficulty gaining weight. What is the diagnosis?

Options

- A. Ileal lymphoma
- B. Ileal TB
- C. Ileal lymphangiectasia
- D. Ileal Ascaris
- E. Ileal Yersinia

No.: 19

D

This is a Barium follow through and a worm outline is clearly seen, taking up some contrast. Lymphoma, TB, and Yersinia cause irregular narrowing, +/- ulceration of the terminal ileum. Yersinia, lymphoma, lymphangiectasia can also multiple SB nodules. Ascariasis is commoner in poorer rural communities where heavy faecal contamination of food may occur. Common drug therapies for ascariasis include piperazine, albendazole and mebendazole. This student had picked up his infection most likely while travelling prior to starting university.

No.: 20



This patient has a history of many years of intermittent jaundice. What is the investigation and diagnosis?

Options

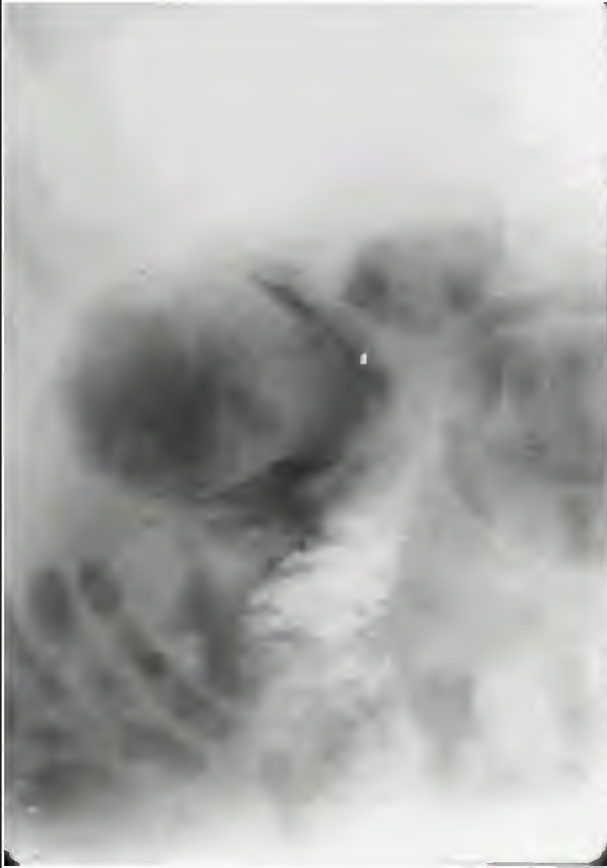
- A. MRCP, cholangitis
- B. PTC (percutaneous transhepatic cholangiogram), cholangitis
- C. MRCP, Caroli's disease
- D. PTC, Caroli's disease
- E. PTC, gallstone causing biliary-renal fistula

No.: 20

D

This is a PTC, done under X-ray guidance, needle inserted percutaneously into biliary tree, therefore you see bones as well, and may see needle. In an MRCP, the patient is untouched, lies in MRI scanner and very fluid-weighted images are obtained, therefore only fluid filled structures are visualised (e.g. biliary tree, bowel, ureter). Caroli's disease is congenital, cystic dilation of major intrahepatic or extrahepatic ducts. It does not follow a familial pattern of inheritance. Caroli's may present at any age, although usually in childhood due to recurrent cholangitis due to gram negative pathogens.

No.: 21



This 48-year-old diabetic woman is admitted in shock, moaning and complaining of abdominal pain. The plain abdominal film is shown, what is the diagnosis?

Options

- A. Incompetent sphincter of Oddi
- B. Periduodenal abscess
- C. Emphysematous cholecystitis
- D. Gallbladder lipomatosis
- E. Duodenal volvulus

No.: 21

C

This is a difficult question and requires some initiative. The list given is in the region of duodenum / gallbladder / common bile duct. What we see is a plain film, with a rounded ball of air consistent with gas in the gall bladder; there is also gas in the gallbladder wall. The patient is sick, so this isn't lipomatosis or incompetent sphincter of Oddi. Duodenal volvulus is not possible as the duodenum is retroperitoneal and duodenal abscesses are very rare. This leaves emphysematous cholecystitis as the most likely correct answer .

Pathophysiology of emphysematous cholecystitis :

\*Ischaemia in the gallbladder wall occurs in conjunction with infection with a gas-producing organism .

\* Gallstone often precipitates (in around 80%), the other 20% get a calculus cystic duct obstruction w inflammatory oedema. The disease is more common in diabetics. Organisms include Clostridium perfringens, welchi, E coli, staph, strep. Treatment is removal of the gallbladder but mortality is 15%.



No.: 22



This baby presents with jaundice. What is the cause of the abnormality on the HIDA scan?

Options

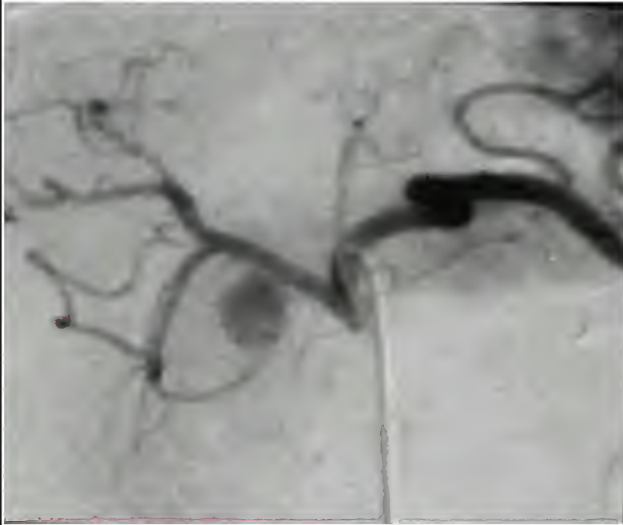
- A. Primary biliary atresia
- B. Secondary biliary atresia
- C. Common bile duct stricture
- D. Cholangio carcinoma
- E. Hepatomegaly

No.: 22

A

HIDA is excreted by the biliary tree into the gut; obstruction means it stays in the liver. Hepatomegaly would not cause a blockage to excretion, cholangiocarcinoma doesn't occur in babies and secondary biliary atresia or common bile duct stricture would be somewhat unlikely. This leaves primary biliary atresia, the only congenital cause as the one possible correct answer. The incidence of primary biliary atresia is between 1:10000 and 1:15000, it should be suspected if jaundice persists for longer than 14 days after birth. Management is either via the Kasai procedure (hepatoportoenterostomy) that has a success rate of 80%, or liver transplantation.

No.: 23



This 38-year-old patient complained of faintness, particularly at the end of the day after working in her shop, and after exercising at the gym before breakfast. What is the investigation and diagnosis?

## Options

- A. MRA coeliac axis, insulinoma
- B. MRA superior mesenteric artery, insulinoma
- C. MRA superior mesenteric artery, glucagonoma
- D. Coeliac axis digital subtraction angiogram (DSA) insulinoma
- E. Coeliac axis DSA, glucagonoma

No.: 23

D

There is a catheter in situ delivering contrast, therefore this isn't an MRA, and only the vessels are seen so it is a subtraction picture. We see an arterial picture, to remind you the supply is :

\*Inferior mesenteric artery - to distal (large) bowel, coeliac axis

\*Superior mesenteric artery - to stomach/small bowel/proximal large bowel .

The head of pancreas is outlined and demonstrates a blush of extra arterial supply to an insulinoma, leading to autonomous insulin production particularly after fasting or heavy exercise, which would cause faintness/low serum glucose, (overproduction of insulin), relieved by eating (in the short term). 95% of insulinomas are benign; hence the most appropriate treatment is usually surgical excision. In rare malignant cases diazoxide or somatostatin analogues may provide symptom relief.



No.: 24

A 23-year-old medical student presents with a five-day history of progressive lethargy, jaundice and dark urine. He denies any fevers, rashes or respiratory symptoms. He had an appendicectomy aged 17 but is not aware that he received any blood transfusions. He is unkeen to be admitted as he is going on elective to Tanzania in one week's time and is taking prophylactic medication. He has been taking regular paracetamol for 3 days but denies overdose. He drinks very occasional alcohol and denies illicit drug use.

He is jaundiced & pale. Systemic examination is otherwise unremarkable.

Investigations :

Hb: 8.0 .  
WBC: 8.5 .  
Plts: 200 .  
MCV: 105 .  
INR: 1.1  
Haptoglobulins: Decreased .  
BIL: 75 .  
ALT: 25 .  
ALP: 110 .  
Hep B serol: Negative .  
Paul Bunnell: Negative .  
CXR: Normal

What is the single most appropriate investigation of choice:

Options Choose 1

- A. Thick and thin blood smears stained with Giemsa
- B. Red blood cell enzyme assays
- C. Blood film
- D. HIV and hepatitis serology
- E. Oesophogastroduodenoscopy (OGD)
- F. Haematinics
- G. Paracetamol level

No.: 24

B

He has evidence of a haemolytic anaemia (i.e. decreased haptoglobulins, elevated bilirubin, normal LFTs, low haemoglobin and elevated MCV due to reticulocytes). Giemsa stain is for malaria (of which he has no other features). The question gives you no other suggestion that he may have HIV.

He has an acute haemolytic anaemia and the only possible precipitating cause which the question mentions is the fact that he is on new medication. He has G6PD deficiency and is haemolysing because he is on anti-malarials. Therefore a blood film would show he was haemolysing (reticulocytes +/- red cell fragments) but does not give the whole diagnosis.



No.: 25



## Barium Swallow

A 62-year-old man with a history of brittle coeliac disease presents with a short history of painful dysphagia. Initially he had difficulty swallowing solids alone but now finds fluids also problematic. The pain is worse in his throat at the beginning of each meal and eases with each mouthful. He has no history of dyspepsia. He now wakes up at night very breathless .

He undergoes a barium swallow .

Which of the following is the most likely diagnosis:

Options

- A. Achalasia .
- B. Thoracic aortic aneurysm .
- C. Tracheo-oesophageal fistula .
- D. Carcinoma of the oesophagus .
- E. Systemic sclerosis.

No.: 25

D

There is a stricture involving the middle third of the oesophagus with 'shouldering' at both proximal and distal ends. There is evidence of mucosal destruction and filling defects with free flow of barium distal to the stricture. These are typical features of carcinoma of oesophagus. To confirm the diagnosis, oesophagoduodenoscopy (OGD) + biopsy would be performed. Coeliac disease is associated with both small bowel lymphoma and carcinoma of the oesophagus. The risk of malignancy seems unrelated to the length of the disease but may be reduced by a gluten-free diet. This man's disease is 'brittle' and this suggests that he is not compliant with dietary advice. There are features in the history which suggest the diagnosis. The fact that the history is short, his symptoms commenced with solids and then progressed to fluids, and that he can overcome the pain later in the meal, all point towards carcinoma rather than achalasia.



No.: 26

A previously fit and well 32-year-old female farmworker presents with a sudden onset of upper abdominal pain, nausea and vomiting whilst working. She denies any respiratory symptoms or visual disturbances. Past medical history is unremarkable and she takes a contraceptive pill and occasional ibuprofen .

On examination, there are no peripheral stigmata of chronic liver disease & she is not jaundiced. P: 110-130 irregularly irregular and BP: 105/50. The JVP is not elevated, heart sounds are normal and respiratory examination is unremarkable. The abdomen is soft, there is tender hepatomegaly and shifting dullness. Pupils are equal and reactive to light and neurological examination is normal .

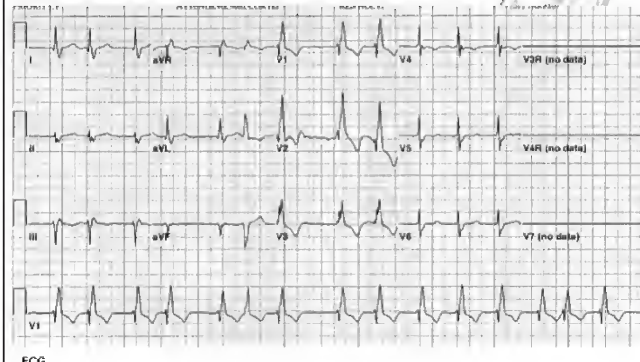
Investigations :

Hb: 11.2 WBC: 6.0 Plts: 178 MCV: 91 INR: 1.6 .

Na: 134 K: 3.3 U: 8.0 Cr: 68

Bil: 40. ALT: 200 (5-35). ALP: 270 (30-150)

ECG :



Which of the following is the most likely underlying diagnosis :

Options Choose 1

- A. Hydatid Disease
- B. Budd-Chiari syndrome
- C. Cholestasis secondary to oral contraceptive pill
- D. Brucellosis
- E. Meigs syndrome
- F. Pulmonary embolus
- G. Organophosphate poisoning

No.: 26

B

This woman has become acutely unwell with elevated liver enzymes and ascites. B, D and E would not cause this and there is nothing else indicating alcohol use. The OCP is the clue. Note that hydatid cysts can cause Budd-Chiari, but grow slowly and would present with a much more insidious onset than this. The cause of Budd-Chiari syndrome is unknown in 30% but is commoner in ATIII, Prot C & S deficiencies it is also associated with pregnancy + OCP use. There is an association with malignancy, especially hepatic, renal and adrenal carcinomas .

Hepatic infection ♦ e.g. hydatid cysts, amoebic abscess or radiotherapy are other causes. Finally, trauma, inflammatory bowel disease, sarcoidosis and bechet ♦s disease may be associated .

There is no clinical evidence of organophosphate poisoning. Organophosphates are acetylcholinesterase inhibitors and therefore result in overstimulation of peripheral nicotinic and muscarinic receptors and CNS receptors. This can cause so-called SLUDGE symptoms: salivation, lacrimation, involuntary urinary and defecation, GI upset and emesis. Other symptoms include abdominal pain, miosis, ataxia, seizures, coma, arrhythmias and bronchoconstriction

Incidentally, the ECG shows AF and RBBB. The RBBB could be a normal variant and the AF due to systemic upset and poor RV filling.



No.: 27

A 42-year-old woman presents with a 2-month history of bloody diarrhoea and unsteadiness when walking. She has lost weight and her stools smell increasingly offensive. She has also noticed paraesthesia in her hands and feet. She has a past history of treatment 1 year ago for localized carcinoma of the cervix by excision and post-operative radiotherapy. She has asthma controlled on regular inhalers. Her mother takes thyroxine replacement.

On examination, tone and power are normal in the legs, with exaggerated knee jerks and absent ankle jerks. The plantar responses are extensor. There is a loss of joint position sense and vibration sense below the ankles.

Investigations :

Hb: 10.1 WBC: 4.4 Plts: 130 MCV: 108

Na: 134 K: 3.6 U: 6.7 Cr: 89

Bil: 35 ALT: 20 ALP: 40

Stool cultures: Negative.

No Ova, cysts or parasites

Blood film: Macrocytes and hypersegmented neutrophils.

Which of the following is the most likely cause of her neurological symptoms:

Options Choose 1

- A. Pernicious anaemia
- B. Metastatic cervical carcinoma
- C. Guillain-Barre syndrome
- D. Subacute combined degeneration of the cord (SCDC)
- E. Paraneoplastic syndrome
- F. Hypothyroidism

No.: 27

D She has a macrocytic anaemia and neurological signs indicating dorsal column loss, a peripheral neuropathy and upper motor neurone signs (extensor plantars, brisk reflexes). This would be consistent with SCDC. This is due to B12 deficiency, her underlying bowel condition may well be coeliac disease although B12 deficiency is only rarely associated. Later symptoms of SCDC include retinal haemorrhage, optic atrophy and sphincter disturbance. Untreated it is usually fatal within 5 years.



No.: 28

You are asked to review a retired 68-year-old man on the coronary care unit. He has been admitted 5 days previously with troponin-positive acute coronary syndrome. Prior to admission, he had been well and living independently. On admission he was in sinus rhythm, haemodynamically stable and afebrile. 12 hours ago, he developed rate-uncontrolled atrial fibrillation and had been commenced on IV digoxin .

Now he is complaining of profound abdominal pain and feeling nauseated. He does not currently have any chest pain .

In his past, he has had two myocardial infarctions and one cerebrovascular accident (CVA) with no residual neurological deficit. He has diet controlled type 2 diabetes, hypertension and mild chronic obstructive pulmonary disease (COPD). He consumes little alcohol .

Medications on his drug chart are aspirin, a statin, IV heparin, regular salbutamol inhaler and IV digoxin .

On examination he is in profound abdominal discomfort and pale. Respiratory rate: 20, temperature: 37.4. P: 120 bpm & regular, BP: 100/60. The JVP is not visible and there is a soft pan-systolic murmur at the apex. There is a right-sided carotid bruit. Auscultation of the lung fields reveals some sparse bi-basal crackles and the abdomen is soft to palpation with no organomegaly. There is no palpable abdominal aortic aneurysm or ascites. Scanty bowel sounds are audible and PR examination is normal .

Investigations now :

ECG: Sinus tachycardia. Rate controlled. Q-waves II and III .

Hb: 11.2. WBC: 14.6 Plts: 220 MCV: 92

INR: 1.3 APPT ratio: 1.6

Na: 141 K: 5.2 HCO<sub>3</sub>: 15 U: 14.4 Cr: 145

Liver function tests: Normal

CRP: 58

CXR and abdominal XR: normal

Which of the following is the next most important management step:

Options Choose 1

- A. Abdominal ultrasound, followed by CT abdomen (with contrast) if it is normal
- B. Diamorphine, IV nitrate and IV furosemide
- C. Stop digoxin and check digoxin level
- D. Stop heparin, cross match 4 units of blood and refer to general surgeons
- E. Arterial Blood Gas
- F. Check CK and dipstick urine
- G. Blood cultures, start BenPen & Gentamicin and arrange urgent ECHO.

No.: 28

D

The combination of abdominal pain following supraventricular tachycardia (SVT) with discomfort out of proportion to the clinical signs, relative hypotension (note history of hypertension) and acidosis all point to acute mesenteric ischaemia. An arterial blood gas would no doubt show a metabolic acidosis but answer (d) is more appropriate. This patient probably needs an urgent laparotomy which will be high risk in view of his recent coronary event, but mortality is likely to be high without surgery.





No.: 29

A 35-year-old Jamaican man is brought to A&E at midnight, after he became unwell on a flight from the Caribbean. He is complaining of abdominal discomfort and distension. He denies fevers or any weight loss. Past medical history is unremarkable. His brother has sickle-cell disease but he had been tested and told he does not have the disease. He smokes 20 cigarettes per day and admits to drinking 4 units of alcohol per day.

On examination he is sweaty and agitated but not jaundiced with no stigmata of chronic liver disease. Pulse: 120 regular. BP: 210/100. Cardiorespiratory examination is unremarkable. There is some generalized abdominal tenderness but no organomegaly and bowel sounds are audible. The pupils are bilateral dilated but reactive to light and reflexes are brisk. Plantars are downgoing.

## Investigations :

Hb: 11.2 WBC: 9.0 Plts: 300

Na: 144 K: 3.1 HCO<sub>2</sub>: 24 U: 5.2 Cr: 72

Liver function tests: Normal

Amylase: 20

CRP: 20

(FIGURE 1)

Which one of the following is the single most appropriate management:



Figure 1

Options Choose 1

- A. Vigorously rehydrate, high-flow oxygen & opiate analgesia
- B. Ipecuana administration
- C. Refer to surgeons for urgent laparotomy
- D. Laxative and enema administration
- E. Check Hb electrophoresis
- F. Urinary toxicology screen
- G. CT abdomen.

No.: 29

C

This is very similar to a question in the April 2003. A Jamaican traveller was returning from the Caribbean who collapsed at the airport with evidence of multiple foreign bodies on abdominal XR.

This is known as the body-packer syndrome. You should always consider it in patient who becomes agitated during or shortly following a flight. This patient has evidence of sympathetic over-activity and probably has cocaine toxicity. He needs a laparotomy and the urinary toxicology screen will confirm the diagnosis. Although urinary toxicology is technically correct as a management step, urgent laparotomy is most important.







No.: 30

A 30-year-old woman is brought to A&E by her flatmates. Apparently they had been binge drinking and she was observed to start vomiting. She then suddenly vomited half a cupful of fresh blood. Past medical history is unremarkable and she takes the oral contraceptive pill. She does not smoke and drinks 20 units of alcohol per week, but this is on the weekends. Her mother has autoimmune hepatitis .

On arrival to A&E, she is alert, orientated and afebrile. Pulse: 72 bpm and regular, and BP: 130/70. There are no peripheral stigmata of chronic liver disease and systemic examination is unremarkable .

Investigations :

Hb: 12.1 WBC: 6.2 Plts:200 MCV: 84

INR: 1.1

Na: 141 K: 4.2 HCO<sub>2</sub>: 26 U: 4.0 Cr: 57

Bil: 12 ALT: 20 ALP: 60 gGT: 100

OGD: No source of bleeding seen. No evidence of blood in the oesophagus, stomach or duodenum

What is the next management step:

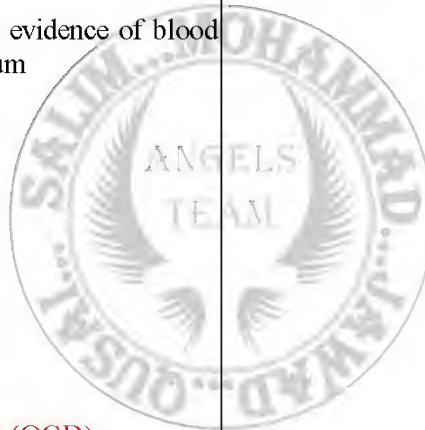
Options Choose 1

- A. Autoimmune screen
- B. Coeliac-axis angiogram
- C. Discharge home with GP follow-up
- D. Liver ultrasound
- E. Barium swallow
- F. Repeat oesophogastroduodenoscopy (OGD)
- G. Red cell scan

No.: 30

C

This patient has a good history for a Mallory-Weiss Tear. She is haemodynamically stable with a normal Hb and a normal oesophogastroduodenoscopy (OGD). This rules out peptic ulcer disease or oesophageal varices. There is nothing to indicate more sinister pathology. She is therefore at low risk and can be discharged. There is also no indication on this occasion to perform an autoimmune screen.



No.: 31

A 72-year-old smoker presented to the gastroenterology clinic with chronic lower abdominal pain. He underwent a barium enema. Which of the following abnormalities would have been shown?



Options Choose 1

- A. Diverticulosis
- B. Colonic polyps
- C. Colonic tumour
- D. Multiple polyposis
- E. Pneumatosis intestinalis

No.: 31

This benign condition consists of multiple gas filled submucosal or subserosal cysts. It is usually seen within the colon, hence the alternative name of pneumatosis coli. The condition is idiopathic, but may be associated with chronic bronchitis and emphysema. This particular patient was a smoker and suffered from underlying chronic obstructive pulmonary disease (COPD).

The condition is important because it can be mistaken for multiple colonic polyps. If there is any doubt, one of the cardinal signs is the lucency of the gas seen outside the line of the colon wall. The cysts are recognisable on colonoscopy.

No.: 32

A 35-year-old lady underwent the above examination for abnormal liver function tests. She came to the gastroenterology clinic as a GP referral after complaining of several months of intermittent diarrhoea. What abnormalities are shown? What is the diagnosis? What further investigation would you recommend?



Options Choose 3

- A. Normal
- B. Common bile duct (CBD) stones
- C. Multiple strictures and beaded appearance of intrahepatic ducts
- D. Cholangiocarcinoma
- E. Primary biliary cirrhosis
- F. Primary sclerosing cholangitis
- G. Liver biopsy
- H. Colonoscopy
- I. Small bowel follow-through

No.: 32

C F H

Primary sclerosing cholangitis (PSC) is a chronic, progressive, inflammatory disease characterised by fibrosis of the bile ducts. The cause is unknown, but a hypersensitivity reaction is implicated. Patients present with abnormalities of liver function tests and progressive intermittent obstructive jaundice, which may be associated with fever, chills, night sweats, pain, and itching. A liver biopsy, endoscopic retrograde cholangiopancreatogram (ERCP), or percutaneous cholangiogram can help achieve diagnosis. The term primary is used to distinguish this condition from bile duct strictures that are secondary to bile duct injury, cholelithiasis, ischaemia, and chemical injury.

Initially, patients come under observation because of abnormal liver function test results demonstrating raised alkaline phosphatase, gamma-glutamyltransferase, and mildly elevated bilirubin levels. All patients eventually present with chronic obstructive jaundice. Of patients with PSC, 10-15% may present with fever, night sweats, chills, itching, and right upper quadrant pain. In 53% of patients, a history of previous biliary surgery and/or recurrent pancreatitis also is found. 70% of patients will develop or already have ulcerative colitis. There is increased risk of colon cancer in this group of chronic colitic patients.

Blood biochemistry testing depicts abnormal liver function test results with raised alkaline phosphatase, gamma-glutamyltransferase, and mildly elevated bilirubin levels. Patients with known inflammatory bowel disease may present with raised liver enzymes before the onset of jaundice.

Cholangiographic features of PSC include predominantly intrahepatic ductal disease with short multiple strictures associated with multifocal mild ductal dilations. More advanced disease is associated with long strictures.

Bile duct dilations may result from the inflammatory process or distal obstruction. Multifocal strictures have a predilection for bifurcations. Skip lesions may be observed in which the duct is of normal calibre. The above features provide a beaded appearance to the ducts.





No.: 33

A 25-year-old footballer went to his club doctor prior to a pre-match medical. He looked slightly yellow and his liver function tests showed :

bilirubin 70

ast 20

alt 35

alk po4 65

ggt 30

What is the most likely diagnosis:

Options Choose 1

- A. Viral hepatitis
- B. Autoimmune hepatitis
- C. Drug induced hepatitis
- D. Gilbert's syndrome
- E. Alcoholic hepatitis
- F. Crigler-Najjar syndrome

No.: 33

D

Gilbert's syndrome is seen in about 5% population. It is due to reduced level of hepatic UDP glucuronyl transferase leading to defective bilirubin conjugation. All liver enzymes are normal except raised bilirubin. Jaundice is intermittent and can be pronounced after extreme exercise, fasting and intercurrent illness. There is no diagnostic test although rise after prolonged fasting is used sometimes to confirm. It is important to do screening tests to exclude other causes of liver injury. These people have normal life expectancy and no treatment is required.

No.: 34

A 24-year-old kickboxer went for a screening prior to a match. He looked slightly yellow and his GP arranged some blood tests. His tests showed :

Bilirubin 72

ALT 24

AST 50

ALK PO4 80

ALB 40

What is the likely diagnosis? How will you confirm this:

Options Choose 3

- A. Viral hepatitis
- B. Autoimmune hepatitis
- C. Drug induced hepatitis
- D. Gilbert's syndrome
- E. Alcoholic hepatitis
- F. Crigler-Najjar syndrome
- G. Fasting
- H. Liver biopsy
- I. Measurement of liver, kidney and smooth muscle auto-antibodies
- J. Hepatitis serology

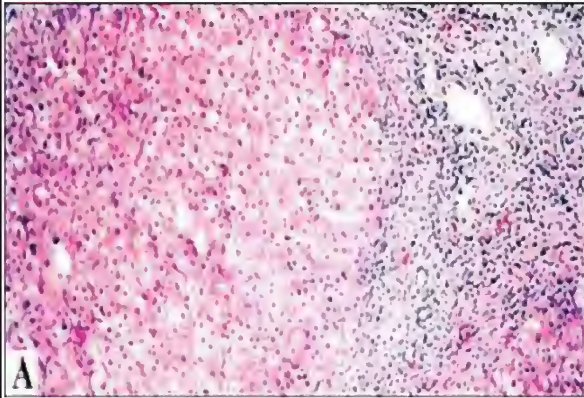
No.: 34

DGI

Gilbert's syndrome is a common (5% of the population), often inherited disorder of bilirubin transport in the liver. The resulting abnormal increase of bilirubin in the bloodstream can lead to intermittent appearance of jaundice but the liver itself remains normal. It is more common in men than women and is named after a French gastroenterologist. Repeated vomiting, missing meals, vigorous exercise or a feverish illness may lead to appearance of jaundice. Blood tests are usually carried out simply to make a diagnosis and to exclude liver disease. Fasting often increases the bilirubin level in Gilbert's syndrome and is often used for confirmation the condition. People with Gilbert's syndrome have a normal life expectancy. There is no hard evidence that the disorder is associated with other more serious diseases.



No.: 35



A 60-year-old Iranian psychotherapist is referred by his general practitioner (GP) because of abnormal liver function test (LFT) and positive hepatitis B serology .

Bili 13

ALT 296

ALP 38

GGT 36

AST 165

Hep BsAg +ve

HBe Ag -ve

Anti Bc +ve

Anti HBe +ve

What would be the most appropriate action:

Options

- A. Request hepatitis B virus (HBV) DNA titres
- B. Request hepatitis C serology
- C. Start antiviral therapy
- D. Request an oesophagogastrroduodenoscopy (OGD)
- E. Monitor with liver ultrasound (U/S) and alphafetoprotein (AFP)

No.: 35

A

This patient has chronic hepatitis B infection as evidenced by HBsAg positivity and antiHBe positivity; this is consistent with infection probably more than 6 years ago. There is white cell infiltration on biopsy suggesting a chronically active hepatic picture. The next stage is to request HBV DNA titres. Unfortunately patients who are HBeAg -ve usually respond poorly to antiviral therapy as they may be carrying a mutant hepatitis B strain and the case requires discussion with a hepatologist.





No.: 36

A 67-year-old lady was found to have low B12. She underwent a Schilling's test and the Stage IV test was positive. What is the diagnosis?

Options

- A. Pernicious anaemia
- B. Coeliac disease
- C. Bacterial overgrowth
- D. Crohn's disease
- E. Pancreatic insufficiency

No.: 36

E

The patient is given two doses of Vitamin B12 (cobalamin). The first dose is radioactive and taken by mouth. The second dose is not radioactive and is given as a shot 2-6 hours later. Urine is then collected over the next 24 hours to measure whether Vitamin B12 is normally absorbed. If Stage I is abnormal, Stage II may be done 3 to 7 days later. In Stage II, patients receive radioactive B12 along with intrinsic factor. Intrinsic factor is produced in the stomach and binds to Vitamin B12. Stage II can tell whether low Vitamin B12 levels are caused by problems in the stomach that prevent it from producing intrinsic factor. If a Stage II test is abnormal, a Stage III test is performed. Here, the Stage II test is repeated after the patient has taken antibiotics for two weeks, and can tell whether the abnormal growth of bacterial has led to low Vitamin B12 levels. A Stage IV test determines whether low Vitamin B12 levels are caused by problems with the pancreas. Here, the patient is given pancreatic enzymes for three days, followed by a radioactive dose of Vitamin B12 .

If there is a problem with the stomach's ability to make intrinsic factor, Stage I of the test will be abnormal and Stage II will be normal. Both the Stage I and II Schilling tests will be abnormal in patients who have problems in absorbing Vitamin B12 and intrinsic factor in the small intestine.

No.: 37

A 60-year-old man presents with bilateral lower back pain worse on bending forward to pick things up off the floor. He has had a sub-total colectomy some 12 years ago. Which diagnosis would you consider first?

Options

- A. Lumbar spondylosis
- B. Renal colic
- C. Psoas abscess
- D. Sacroiliitis
- E. Perthes disease

No.: 37

D

The suggestion here is that the colectomy may have been performed for inflammatory bowel disease. This may be associated with sacroiliitis with sclerosis and erosion of the sacroiliac joints, leading to pain, particularly on bending. Enteropathic arthritis also commonly affects the small joints of the hands. It is difficult to treat, but often responds to 5-amino salicylic acid type compounds used to treat the underlying bowel disease. Short courses of prednisolone may be used during an acute flare.

No.: 38



A 59-year-old man presents with abdominal pain and distension. He has ascites and jaundice. The figure shows a technetium scan of liver. What is the diagnosis?

Options

- A. Hepatoma
- B. Liver mets
- C. Liver abscess
- D. Budd Chiari syndrome
- E. Hepatitis

No.: 38

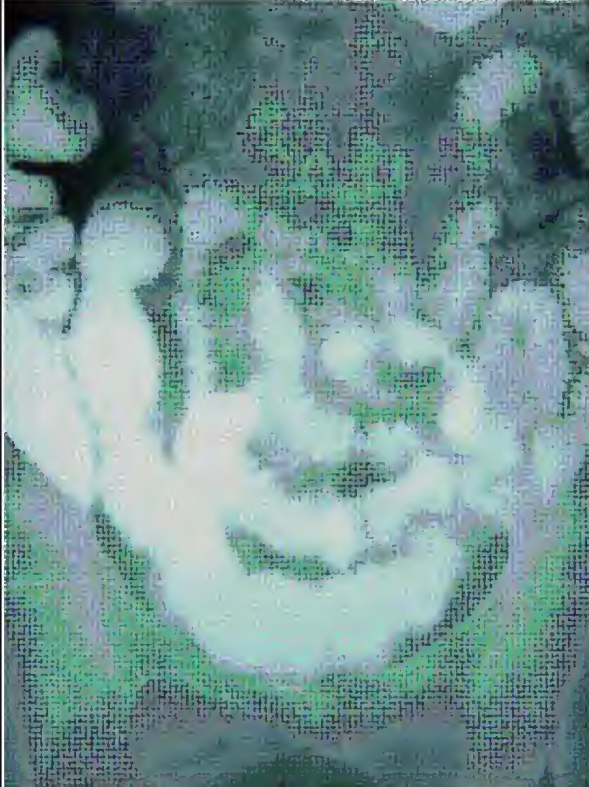
D

Shown is a technetium scan. Technetium-99m sulfur colloid uptake is increased in the caudate lobe compared to the rest of the liver due to retained venous drainage. Budd Chiari syndrome (BCS) is caused by occlusion of hepatic vein. Usual cause is thrombus although it may occasionally be caused by tumor. Venous thrombosis causes BCS as a result of polycythemia rubra vera, antiphospholipid syndrome, pregnancy and the postpartum state, use of oral contraceptives, sickle cell disease, thrombocytosis, and paroxysmal nocturnal hemoglobinuria. Congenital causes: Web, diaphragm, or interruption of the IVC. Phlebitis, autoimmune disease (Behçet disease), trauma, radiation injury, and use of immunosuppressive drugs and pyrrolizidine alkaloids may also cause BCS. TIPS placement is becoming popular as a definitive procedure for decompressing the portal venous system or as prelude to liver transplantation.



No.: 39

This patient has a longstanding history of abdominal pain and bloating. Which of the following is/are a possible cause:



Options Choose 4

- A. Inflammatory bowel disease
- B. Radiation enteritis
- C. Lymphoma
- D. Mastocytosis
- E. Amyloid

No.: 39

A B C E

There is a prominent stricture and a dilated loop of small bowel within the pelvis; also the loops of bowel are far apart from each other (thickened wall). Causes of multiple loops of SB with thickened walls and thickened folds include IBD, infection, e.g. actinomycosis, radiation, and infiltration - amyloid, lymphoma. mastocytosis is a cause predominantly of a nodular appearance to the small bowel .

The presence of too many mast cells, or mastocytosis, can occur in two forms-cutaneous and systemic. The most common cutaneous (skin) form is also called urticaria pigmentosa, which occurs when mast cells infiltrate the skin. Systemic mastocytosis is caused by mast cells accumulating in the tissues and can affect organs such as the liver, spleen, bone marrow, and small intestine.





No.: 40

A 22-year-old woman presents with intermittent mild abdominal pain, bloating and weight loss over the last 2 years. She has had two episodes of diarrhoea, each lasting about one week but has never had pr blood loss. Both episodes were related to increasing abdominal pain, but resolved spontaneously. She reports that her weight has fluctuated over the last 10 years, but has dropped by about 10 kg in the last year. She eats well, but avoids fruit and green vegetables as they make her feel bloated. Apart from one admission to hospital for asthma, she has otherwise been well. She is married with two children and works in a travel agency. She smokes 10 cigarettes a day and does not drink alcohol .

On examination :

Height 1.65m

Weight 44kg

Cardiovascular, respiratory and neurological examinations are normal. On examination of her abdomen she has an appendectomy scar, but there are no masses or organomegaly. Bowel sounds normal. Rectal and sigmoidoscopy examinations are normal .

Investigations :

Hb 9.1

WCC 4.1

Platelets 110

MCV 72

fIBlood film Macrocytosis and Howell-Jolly bodies noted

Na+ 132

K+ 4.2

Urea 2.3

Creatinine 66

Ca2+ 2.87

Alk Phos 201

ALT 31

Albumin 32

Amylase 110

B12 180 (160-900)

Folate 5 (3-20)

Ferritin 2 (4-120)

What complication has arisen?

Options

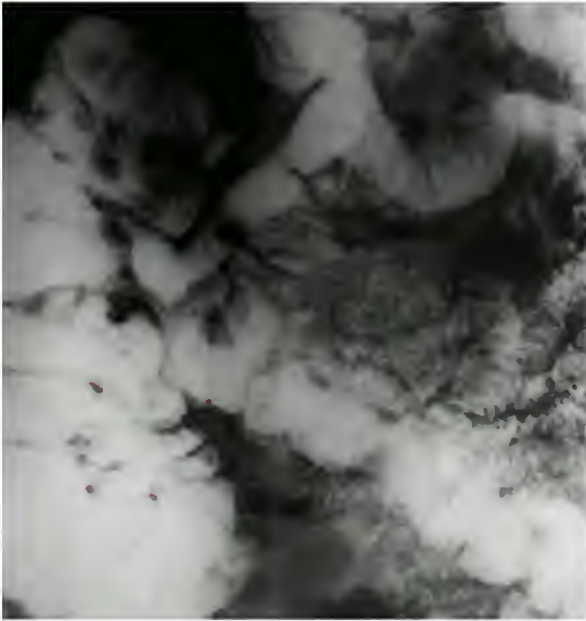
- A. Osteoporosis
- B. Secondary hyperparathyroidism
- C. Tertiary hyperparathyroidism
- D. Paget's disease of bone
- E. Hypersplenism

No.: 40

C

This is most likely to be coeliac disease, especially with the hyposplenism (Howell-Jolly bodies) and folate deficiency with low iron and normal B12. Crohn's is a possibility as well. The low albumin could be due to either. Vitamin D malabsorption is one consequence of prolonged untreated coeliac disease and this leads to impaired calcium metabolism. One possible result of this is secondary then tertiary hyperparathyroidism (initially due to appropriate parathyroid hyperplasia and then due to autonomous adenoma formation. She clearly requires dietary advice and to ensure compliance to a gluten free diet. She may well require parathyroid scanning to exclude an autologous adenoma and if tertiary hyperparathyroidism is confirmed she will need surgery.

No.: 41



What is the diagnosis that can you infer from the following radiological picture?

Options

- A. Ileal lymphoma
- B. Ileal TB
- C. Ileal lymphangiectasia
- D. Ileal Ascaris
- E. Ileal Yersinia

No.: 41

D

Barium follow through :

Worm outline seen, takes up contrast in gut too .

Lymphoma, TB, Yersinia causes irregular narrowing, +/- ulceration and matted terminal ileum .

Yersinia, Lymphoma, Lymphangiectasia can also multiple SB nodules.

No.: 42



What is the cause of the abnormality on this HIDA scan of a baby?

Options

- A. Primary Biliary Atresia
- B. Secondary Biliary Atresia
- C. Common Bile Duct Stricture
- D. Cholangiocarcinoma
- E. Hepatomegaly

No.: 42

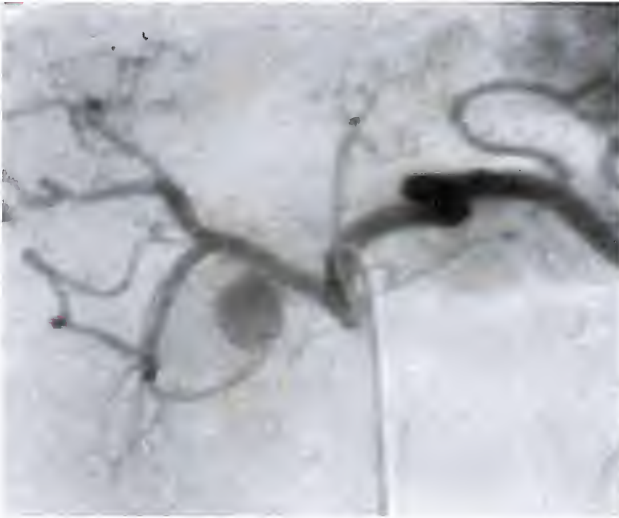
A

HIDA excreted by biliary tree into gut  
In case of obstruction - stays in liver

Primary Biliary Atresia - only congenital cause on list  
Cf. other causes rare or do not occur in babies



No.: 43



This patient complained of faintness, relieved by eating, what is the investigation and diagnosis?

Options

- A. MRA Coeliac Axis, insulinoma
- B. MRA Superior Mesenteric Artery, insulinoma
- C. MRA Superior Mesenteric Artery, glucagonoma
- D. Coeliac Axis digital subtraction angiogram (DSA), insulinoma
- E. Coeliac Axis DSA, glucagonoma

No.: 43

D

It is Coeliac Axis digital subtraction angiogram showing a catheter in situ (therefore, not MRA) .

Only vessels seen, therefore, subtraction

Inferior mesenteric artery - supply distal (large bowel, cf. Coeliac Axis and SMA which supply stomach/SB/proximal LB)  
Head of pancreas outlined

Insulinoma -

\*autonomous insulin production

\* would cause faintness/low serum glucose, overproduction of insulin, relieved by eating in the short term



No.: 44



What is the investigation and diagnosis in this man with chronic renal impairment?

Options

- A. CT, small right kidney
- B. CT, left hypernephroma
- C. CT, retroperitoneal fibrosis
- D. MRI, retroperitoneal lymphoma
- E. MRI, left hypernephroma

No.: 44

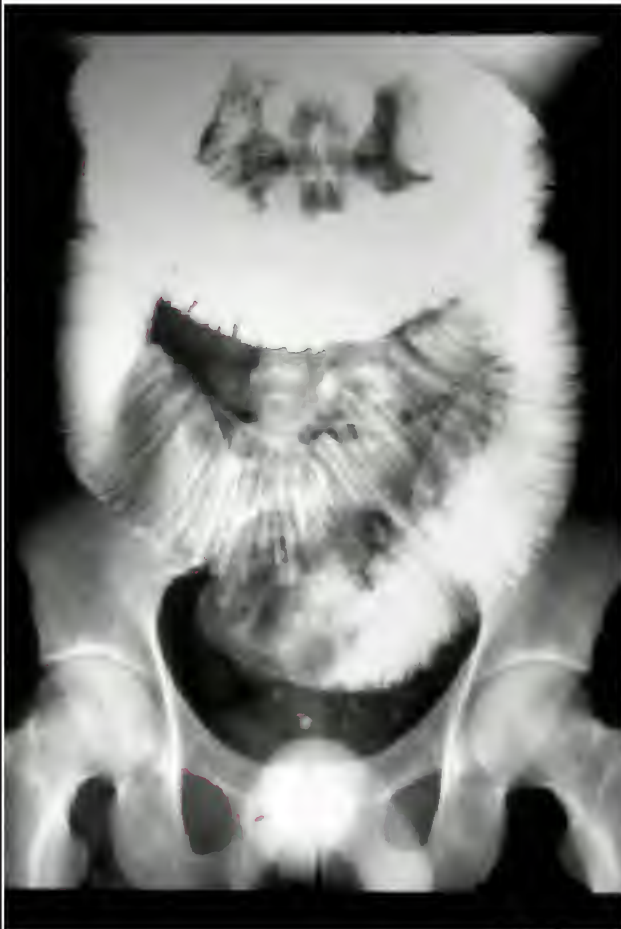
C

CT, not MRI (bone = white, can see bowel)

The area of retroperitoneal fibrosis is the ill-defined area of soft tissue density immediately anterior to the vertebral body which is surrounding the aorta. In addition, the IVC is blocked and not seen.



No.: 45



What is the investigation and diagnosis?

Options

- A. Barium Enema, LBO (Large bowel obstruction)
- B. Barium Enema, SBO (Small bowel Obstruction)
- C. Barium Follow Through, LBO
- D. Barium Follow Through, SBO
- E. Barium Follow Through, radiation enteritis

No.: 45

D

Enema - via rectum, shows LB .

Follow through - per-orally, shows stomach, then SB .

Barium follow through is contraindicated in LBO .

SBO here is secondary to Trichobezoar.

No.: 46



Which of the following is a possible cause?

Options

- A. SLE
- B. Scleroderma
- C. Dermatomyositis
- D. Coeliac Disease
- E. Crohn's Disease

No.: 46

B

Stack of coins/accordion pattern - very sharply defined folds, very tightly packed  
 Small bowel dilation - can stimulate SBO  
 Due to predominantly circular muscle involvement

Also seen in Scleroderma :

- \*Pseudodiverticulae (sacculations due to asymmetrical smooth muscle atrophy)
- \*Blind loop syndrome & malabsorption
- \* Dermatomyositis - mimics Scleroderma



No.: 47



What is the diagnosis that can you infer from the X-ray abdomen?

Options

- A. LBO (Large bowel obstruction)
- B. SBO (Small bowel obstruction)
- C. Toxic Megacolon
- D. Chagas Disease
- E. Ankylosing Spondylitis

No.: 47

**C**

Large bowel thick walled and dilated, at risk of perforation

Causes :

- \*IBD
- \*Ischaemia
- \* Infection (clostridium)





No.: 48

A 50-year-old patient with primary biliary cirrhosis (PBC) is referred to your clinic. She has a 5-month history of increasing thigh pain, and difficulty rising from a chair. Musculoskeletal examination is normal other than some proximal weakness, hip flexion power 4/5 bilaterally.

Her blood tests show :

Haemoglobin (Hb) 11.3  
 White cell counts (WCC) 4.6  
 Platelets (Pl) 300  
 Alanine transferase (ALT) 44  
 Alk phos 350 (170 last year)  
 Corrected calcium 2.0  
 Phosphate 0.55  
 Erythrocyte sedimentation rate (ESR) 35

The most likely cause of her symptoms is :

Options

- A. Polymyositis
- B. Polymyalgia rheumatica
- C. Myalgia associated with PBC
- D. Osteomalacia
- E. Osteoporosis

No.: 48

D

PBC patients have cholestatic liver disease, and thus have difficulty absorbing the fat-soluble vitamins A, D, E and K from the gut. Many are on intramuscular (im) vitamins A and D for this reason, and they have an increased risk of osteoporosis. This woman has a high alkaline phosphatase, which could be caused by PBC, or more likely osteomalacia, in association with low calcium and vitamin D. Symptoms are often non-specific, with myalgias and bone pain common. Patients often develop hip girdle weakness and pain. Following measurement of vitamin D and parathyroid hormone (PTH), therapy should be with im or oral vitamin D replacement, and oral calcium. Coeliac disease should also be considered.





No.: 49

A 55-year-old female presents with a 6-month history of weight loss and diarrhoea. Over this period of time she had lost approximately 10 kg in weight and was aware of watery diarrhoea several times daily. She was also aware of occasional flushes, which she had experienced since the menopause at the age of 49 but had become more frequent of late. She had previously been well with no other past medical history. She took no medication. She smoked 10 cigarettes per day and was teetotal. On examination, she had a reddish complexion and had a BMI of 24 kg/m<sup>2</sup>. She had a pulse of 88 beats per minute regular and a blood pressure of 130/88 mmHg. There were no abnormalities on cardiovascular or respiratory examination but abdominal examination revealed 2 finger breadths hepatomegaly.

Investigations revealed :

Haemoglobin 14.0 g/dL

White blood cells 8.5 x 10<sup>9</sup>/L

Platelets 297 x 10<sup>9</sup>/L

Serum sodium 144 mmol/L

Serum potassium 4.1mmol/L

Serum urea 3.9 mmol/L

Serum creatinine 110 umol/L

Serum alkaline phosphatase 125 IU/L

Serum alanine aminotransferase 40 IU/L

Serum bilirubin 12 umol/L

24hr Urine 5-Hydroxyindoleacetic acid (5-HIAA)

100mg/d (NR < 5 mg/d)

Abdominal ultrasound scan showed multiple echo-dense deposits within the liver.

What is the most appropriate treatment for this patient's diarrhoea?

Options Choose 1

- A. Cyproheptadine
- B. Ketanserin
- C. Loperamide
- D. Methysergide
- E. Octreotide

No.: 49

This patient has carcinoid syndrome secondary to hepatic metastasis of a likely gastrointestinal (GI) carcinoid tumour primary. The somatostatin analogue octreotide is the treatment of choice for the symptoms by blocking the effects of excess serotonin, although it has no effect on the malignancy.





<p>No.: 50</p> <p>A 56-year-old woman with diverticular disease and anaemia is investigated .</p> <p>Her blood test results reveal the following :</p> <p>Hb 10.8 WCC 4.5 Platelets 121 MCV 102.2 B12 72 (120-900) Folate 62 (3-20) Ferritin 66 (4-120) Blood Film: Macrocytosis and hypersegmented neutrophils (right-shifted) Schilling Test: Oral labelled B12 secreted in urine 3% Oral labelled B12 - Intrinsic factor 4%</p> <p>What is the cause of the anaemia:</p> <p>Options</p> <p>A. Diverticular disease B. Intrinsic factor deficiency C. Chronic liver disease D. Folate deficiency E. Pernicious anaemia</p>	<p>No.: 50</p> <p>A</p> <p>The type of anaemia is fairly apparent, however, the cause is less so. The clue is found in her diagnosis of diverticular disease and the elevated folate .</p> <p>B12 malabsorption actually occurs in this disease due to bacterial utilization of the vitamin. The bacteria synthesize folate which becomes markedly elevated.</p>
<p>No.: 51</p> <p>A 66-year-old man in a state of septic shock is admitted after undergoing barium enema for a change in bowel habit. He has a history of longstanding rheumatoid arthritis. The barium enema demonstrated diverticular disease but was otherwise normal .</p> <p>The patient's blood test results reveal the following :</p> <p>Hb 9.8 WCC 3 Platelets 191 MCV 66.9</p> <p>Which of the following options suggest a cause for his anaemia:</p> <p>Options</p> <p>A. Occult GI blood loss B. Anaemia of chronic disease C. Bone marrow failure D. Intravascular haemolysis E. Iron malabsorption</p>	<p>No.: 51</p> <p>A</p> <p>Felty's syndrome is a neutropaenia associated with hypersplenism and rheumatoid arthritis. The iron deficiency anaemia seen on the blood count is most likely to be due to gastrointestinal (GI) blood loss than any of the other causes .</p> <p>GI blood loss is frequently as a result of non-steroidal anti-inflammatory drugs (NSAIDs) treatment. Diverticulitis can also cause bleeding due to ulceration.</p>

No.: 52



This 76-year-old man presents with abdominal pain and guarding. He has known gallstones. What is the diagnosis :

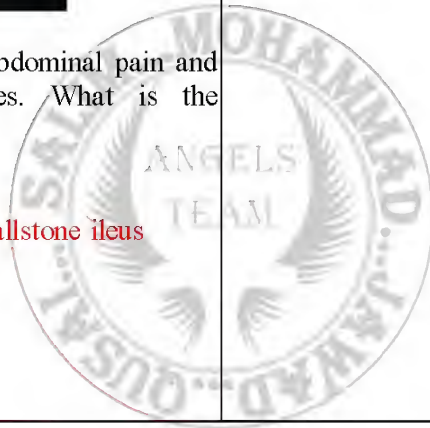
Options

- A. Choledochoduodenal fistula with gallstone ileus
- B. Small bowel obstruction
- C. Ascending cholangitis
- D. Cholangiocarcinoma
- E. Ischaemic bowel

No.: 52

A

There is small bowel dilatation with obvious static loops. There Is also gas in the biliary tree. The differential is recent ERCP, surgery or gas producing organisms, however given the history, A is the best answer.





No.: 53



A 59-year-old man presents with a change in bowel habit. What is the diagnosis :

Options

- A. Colonic carcinoma
- B. Crohn's disease
- C. Sigmoid volvulus
- D. Diverticular disease
- E. Caecal carcinoma

No.: 53

D

There is marked diverticular disease but no other abnormality.

No.: 54



A 44-year-old man with longstanding diarrhoea and iron deficient anaemia is reviewed. What is the cause of his symptoms :

Options

- A. Coeliac Disease
- B. Ulcerative colitis
- C. Crohn's disease
- D. Diverticular disease
- E. Laxative abuse

No.: 54

B

There is a marked loss of the haustral pattern on this barium enema, with fine ulceration and a 'lead pipe' appearance. UC is more likely than Crohn's as the disease is continuous.

No.: 55



A 76-year-old woman with a benign oesophageal stricture has an endoscopic dilatation. What complication has arisen :

Options

- A. Mucosal tearing
- B. Oesophago-tracheal fistula
- C. Oesophageal perforation
- D. Gastric volvulus
- E. Tracheal intubation

No.: 55

C

There is a clear leak of contrast into the mediastinum.



No.: 56



A 69-year-old man presents with worsening heartburn, belching and dyspepsia. What is seen on this barium swallow :

Options

- A. Hiatus hernia
- B. Oesophageal diverticulum
- C. Oesophageal carcinoma
- D. Gastric volvulus
- E. Achalasia

No.: 56

A

There is a large, rolling hiatus hernia visible adjacent to the oesophagus.



No.: 57



A 45-year-old woman is admitted with right upper quadrant pain, a fever, leucocytosis and jaundice. She has an ERCP as shown. What is the diagnosis :

Options

- A. Stones in the common bile duct
- B. Cholangiocarcinoma
- C. Mirizzi's syndrome
- D. Carcinoma of the head of the pancreas
- E. Sclerosing cholangitis

No.: 57

A

There are multiple filling defects compatible with stone in the CBD.

No.: 58



This 49-year-old presented with vomiting, abdominal pain and distension to casualty. This is her abdominal X-ray. What is the diagnosis:

Options

- A. Large bowel obstruction
- B. Small bowel obstruction
- C. Gallstone ileus
- D. CT pneumocolon
- E. Toxic megacolon

No.: 58

B

This is obviously small bowel obstruction with central, dilated loops of bowel; you can clearly see valvulae conniventes all the way across the bowel (note that haustrae/taenia of large bowel do not go all the way across). Common causes of large bowel include adhesions (80% in adults), abdominal hernia, and Crohn's disease. Less common causes include intussusception and extrinsic compression due to carcinomatosis. Gallstone ileus is a frequent occurrence in the magnetic resonance cholangiopancreatography (MRCP) and you should see the gallstone in the distal small bowel and possibly air in the biliary tree. Management of small bowel obstruction obviously depends on the underlying cause, but laparotomy and at least limited bowel resection is common.



No.: 59



This 19-year-old girl has been referred by the learning difficulties psychiatrist with a distended abdomen and vomiting. What is the investigation and diagnosis:

Options

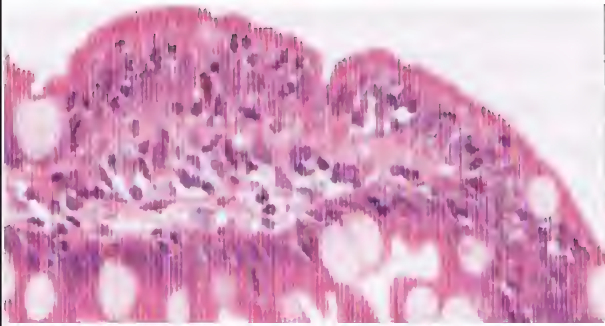
- A. Barium enema, large bowel obstruction (LBO)
- B. Barium enema, small bowel obstruction (SBO)
- C. Barium follow through, LBO
- D. Barium follow through, SBO
- E. Barium follow through, radiation enteritis

No.: 59

D

This is a barium follow through demonstrating small bowel obstruction. Barium follow through is contraindicated in large bowel obstruction. SBO here is secondary to trichobezoar (a large mass of ingested hair). On questioning the psychiatrist he reported that the patient has been known previously with trichotillomania (compulsive eating of her own hair). 80% of small bowel obstruction in adults is due to adhesions, hernias, Crohn's disease, intussusception and extrinsic involvement by cancer leading to compression are other causes. Intestinal nematodes (ascariasis) are another possible cause in areas of poor food hygiene.

No.: 60



A 60-year-old lady is sent for investigation of iron deficiency anaemia (Hb 10g/dL) and weight loss. A gastroscopy was normal and histology of D2 biopsy is shown. What would you do next:

Options

- A. Treat with a gluten free diet and repeat D2 biopsies with oesophagogastroduodenoscopy (OGD) later .
- B. Repeat the gastroscopy and send D2 biopsy for culture .
- C. Request a colonoscopy to investigate the anaemia .
- D. Request a barium follow through .
- E. Treat with ferrous sulphate.

No.: 60

A

The mucosal surface is flat, making a diagnosis of subtotal villous atrophy and coeliac disease most likely. In less marked cases of villous atrophy with a history of foreign travel, then tropical sprue may be a possibility. The gold standard for diagnosis is to treat with a gluten free diet and then re-biopsy. Anti-gliadin antibodies may also be helpful. She is in the danger age range for colon carcinoma, so colonoscopy should be carried out at some stage to rule out co-existent colon cancer.



No.: 61



A 67-year-old man presents with backpain and stiffness.  
What is the X-ray diagnosis :

Options

- A. Ankylosing spondylitis
- B. Collapsed lumbar vertebrae
- C. Osteoarthritis
- D. Abdominal aortic aneurysm
- E. Pancreatitis

No.: 61

C

There are osteophytes but certainly no bamboo spine nor any other pathology of note.



No.: 62



A 23-year-old woman with ulcerative colitis is admitted with abdominal pain, a fever, leucocytosis and bloody diarrhoea. Her plain abdominal film is shown. What is the most appropriate management :

Options

- A. Oral prednisolone and fluid rehydration
- B. Immediate emergency colectomy
- C. Azathioprine
- D. High dose intravenous methylprednisolone
- E. Metronidazole and Ciprofloxacin

No.: 62

D

There is gross dilatation of the transverse colon (a toxic megacolon) with ulceration. A maximum of 5 days of intravenous steroids should be given but if the X-ray appearances deteriorate or her clinical condition worsens, then a colectomy is indicated.

No.: 63

A woman of 65 is referred with anaemia. She has inflammatory bowel disease. She has the following results :

Hb 8.8

WCC 3.6

platelets 222

MCV 70

Haptoglobins &lt; 0.04

Bilirubin 65

Alk Phos 100

ALT 23

How would you confirm the underlying diagnosis:

Options

- A. Direct Coomb's test
- B. Indirect Coomb's test
- C. Blood film
- D. Fibrin degradation products
- E. D-dimers

No.: 63

A

This is autoimmune haemolytic anaemia, a rare complication of salazopyrin therapy. Indeed there are relatively few patients with irritable bowel disease (IBD) on this drug now. The sulphasalazine drugs are much more common. A direct Coomb's test looks for erythrocytes already coated with antibody, whereas the indirect test is used to detect potential red cell-antibody interactions.

No.: 64



A 27-year-old man is admitted with a cough and haemoptysis. His oxygen saturations fall rapidly on exercise. What is the diagnosis :

Options

- A. Squamous cell carcinoma of the tongue
- B. Secondary syphilis
- C. Lichen planus
- D. Behcets syndrome
- E. Oral hairy leukoplakia

No.: 64

E

There are white plaques along the lateral aspect of the tongue ♦ with the history of chest sepsis, the diagnosis of HIV has to be considered.

No.: 65



A 67-year-old is referred by their GP for investigation of weight loss and vague abdominal pain. They give a vague history of a brief episode of intermittent constipation lasting for 6-8 weeks in total. What is the investigation and diagnosis:

Options

- A. Barium Enema/ Ulcerative Colitis
- B. Barium Follow Through/Crohn's
- C. Barium Follow Through/Rectal Carcinoma
- D. Barium Enema/Rectal Carcinoma
- E. Barium Enema/Caecal Carcinoma

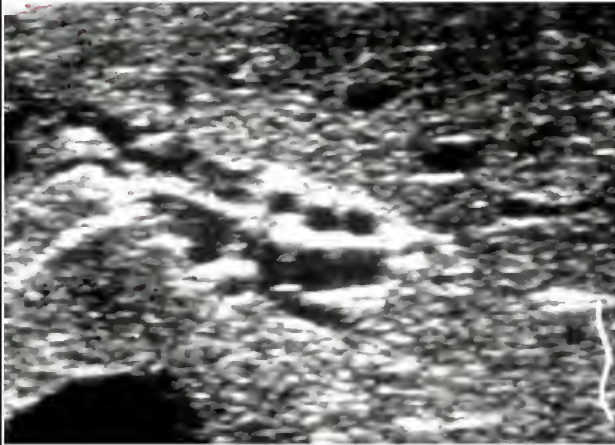
No.: 65

D

There is an obvious apple core lesion shown on barium enema consistent with a rectal carcinoma. The incidence of rectal carcinoma increases with age and may be related to diet and other environmental factors, right sided colonic tumours may occur at an earlier age associated with genetic mutations such as familial adenomatous polyposis. Prognosis depends upon stage at presentation, Dukes A and B tumours carrying a much greater chance of cure at 5 years.



No.: 66



This HIV+ 35-year-old man was admitted to ITU with deranged liver function tests (LFTs). This investigation was performed on the ward. What is the investigation and the diagnosis:

Options

- A. T1W MRI, liver cirrhosis
- B. Ultrasound (US), cholangitis
- C. Ultrasound (US), liver cirrhosis
- D. T1W MRI, cholangitis
- E. T1W MRI, portal vein thrombosis

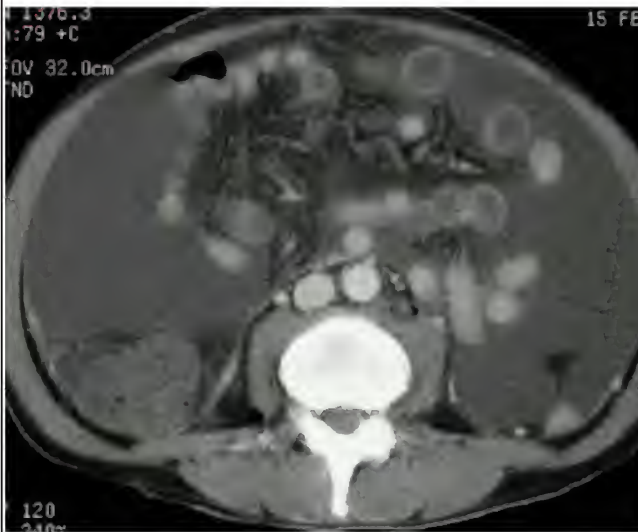
No.: 66

**B**

Ultrasound scans take place on the ward, white speckling like snow appears on the scan. On an MRI scan the anatomy should be clear. This US is centred on a black tube = CBD which shows irregular beading and dilation of intra and extra hepatic bile ducts, like sclerosing cholangitis. In human immunodeficiency virus (HIV) the common causative organisms are cytomegalovirus (CMV) and cryptosporidium. CMV treatment is with intravenous gancyclovir, but both pathogens are difficult to eradicate.



No.: 67



This is a CT scan of the abdomen in a man with a distended abdomen clinically. He admits to a gradual increase in the size of his abdomen and having to buy larger trousers over the past couple of months. What is the abnormality:

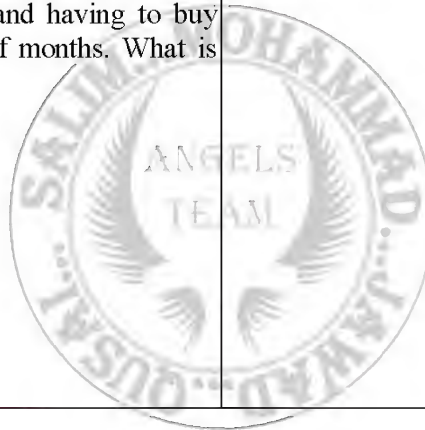
Options

- A. Right renal carcinoma
- B. Retroperitoneal lymphadenopathy
- C. Retroperitoneal fibrosis
- D. Prostate metastasis
- E. Ascites

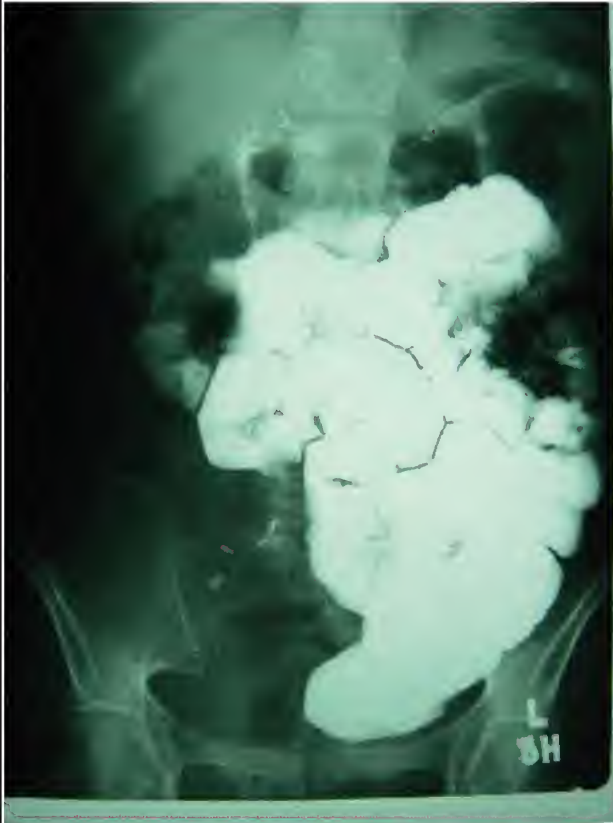
No.: 67

E

The small bowel is filled with contrast (white), it floats in ascites, the small bowel lies centrally, ascites lies in lateral flanks. On CT: Fluid is grey, fat is black, contrast and bone is white. Ascites may be transudate or exudative in nature. Transudate ascites may be associated with renal, cardiac or hepatic failure and is associated with salt and water retention. Below 11g/L usually signifies transudate ascites but this cut off is far from absolute. Protein count of 11g/L or above is likely to be associated with exudate ascites, that may be inflammatory, infective (e.g. TB) or due to malignancy.



No.: 68



This 30-year-old patient complains of steatorrhoea, lassitude and weight loss and has a normocytic anaemia with low serum calcium. What is the diagnosis:

Options

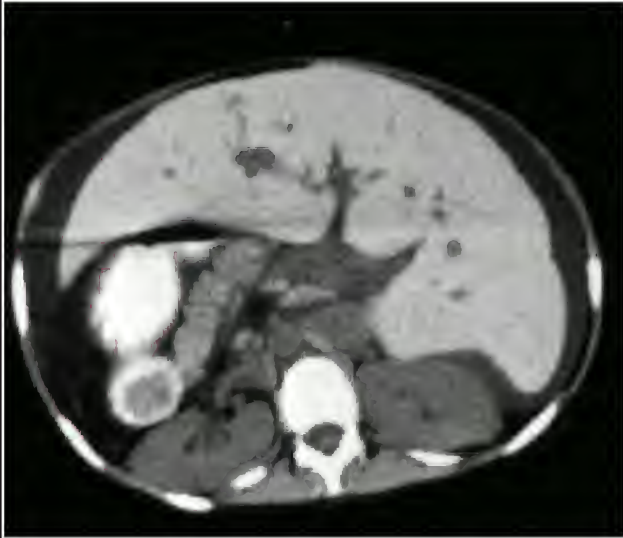
- A. Crohn's disease
- B. Lymphangiectasia
- C. Lymphoma
- D. Coeliac disease
- E. Waldenstrom's macroglobulinaemia

No.: 68

D

This is a film of a small bowel follow through, the barium should take less than 90 mins to reach the terminal ileum and anything longer is slow transit time. In this case the small bowel is dilated, featureless, and slow. Causes include tropical sprue, obstruction, scleroderma and coeliac disease, which is the cause in this case. Malabsorption in coeliac occurs due to atrophy of small intestinal villi. Symptoms include diarrhoea, steatorrhoea and weight loss with anaemia (Fe/folate/B12 deficiency), neuropathy, depression; osteomalacia and dermatitis herpetiformis all possible features in longstanding poorly managed disease.

No.: 69



This 52-year-old man has diabetes. He also complains of abnormally dark skin and joint pains, particularly affecting his knees. What is the likely diagnosis:

Options

- A. Chronic pancreatitis
- B. Cirrhosis
- C. Haemochromatosis
- D. Pancreatic duct dilation
- E. Budd Chiari

No.: 69

C

This is a CT abdomen. The pancreas is plump and healthy with no calcification therefore this is not pancreatitis. Cirrhosis is a possibility, but haemochromatosis is more likely with the history of joint pains, abnormal skin pigmentation and diabetes. The liver is very bright (white) in comparison with rest of abdomen this is due to iron deposition. Serum ferritin and liver biopsy with staining for iron is the best way to investigate the diagnosis further. Presentation depends on sex (females present later due to menstruation acting as a natural form of venesection), consumption of alcohol or other hepatotoxins, and the presence of hetero or homozygosity for the gene defect (Cys Tyr 282 mutation is the most common).





No.: 70



What is the most likely diagnosis in this middle aged Egyptian man:

Options

- A. Hepatocellular carcinoma
- B. Lymphoma post radiotherapy
- C. Ca colon met post radiotherapy
- D. Hydatid cyst
- E. Biliary atresia

No.: 70

D

There is one large cyst here that has a neat boarder and a number of daughter cysts, making hepatocellular carcinoma, lymphoma, and metastases unlikely. Biliary atresia is extremely unlikely to cause a single area of dilatation within the liver. The rim of the lesion is calcified. Hydatid disease is still very prevalent in Egypt, making this the most likely diagnosis. It is caused by the dog tapeworm, *Echinococcus granulosus* and infection may come to humans via domestic or wild dogs. The liver is affected in 60% of cases, lung in 20%, kidneys in 3% and brain and bone in 1%. Large cysts like this one may be removed surgically, but shrinkage may occur with albendazole drug therapy.



No.: 71



This patient is 70-year-old. They present with a grossly distended abdomen, vomiting of faeculent material and absolute constipation for 3 days. What is the diagnosis:

Options

- A. Large bowel obstruction
- B. Small bowel obstruction
- C. Ileus
- D. Plain film of CT pneumocolon
- E. Toxic megacolon

No.: 71

A

There is dilated bowel predominantly around the edges of the abdomen consistent with large bowel obstruction (contrastingly small bowel obstruction occurs centrally). The bowel is very large calibre but the wall is not particularly thick, this makes toxic megacolon (inflammatory bowel disease related), less likely as there is often oedema of the bowel wall. Causes of large bowel obstruction include carcinoma, diverticular mass and intussusception. If there were signs of perforation then this patient would require urgent laparotomy, otherwise nil by mouth, NG tube and IV antibiotics and then perhaps further radiological investigation progressing to laparotomy at the earliest opportunity.

No.: 72



This is the percutaneous transhepatic cholangiography (PTC) of a 45-year-old man with longstanding inflammatory bowel disease. His liver function tests have become abnormal during the past couple of years and the GP refers him for a hepatology opinion. What is the most likely diagnosis:

Options

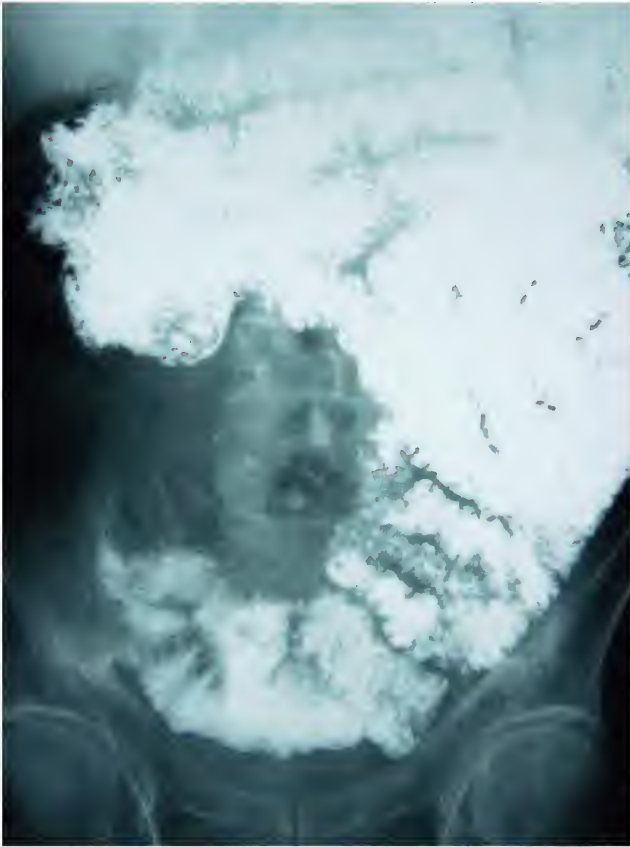
- A. Sclerosing cholangitis
- B. Choledochal cyst
- C. Choledochocele
- D. Primary biliary cirrhosis
- E. Gallstone ileus

No.: 72

A

There is stenosis, dilatation, beading and pruning of extra and intrahepatic ducts. These changes are consistent with primary sclerosing cholangitis, a condition strongly associated with ulcerative colitis. Seventy percent of cases are men and presentation is more common over the age of 40 years. Liver histology in this condition shows inflammation of intrahepatic biliary radicals with considerable scar tissue, classically described as looking like onion skin. The condition is slowly progressive with cholangiocarcinoma occurring in up to 20%. The only proven treatment is liver transplantation.

No.: 73



This barium follow through (Barium FT) shows multiple small bowel (SB) nodules. Which of the following is not a cause:

Options

- A. Lymphoma
- B. Lymphangiectasia
- C. Mastocytosis
- D. Coeliac Disease
- E. Eosinophilia

No.: 73

D

Causes of multiple bowel nodules :

- \*lymphoma
- \*lymphangiectasia
- \*metastasis (melanoma)
- \*mastocytosis
- \*polypsis
- \*Peutz-Jeghers (hamartomas)
- \*Waldenstroms
- \*Whipples
- \*Yersinia
- \*eosinophilia
- \* typhoid



No.: 74



This patient has a long-standing history of abdominal pain & bloating. Which of the following is not a possible cause:

Options

- A. Inflammatory bowel disease
- B. Radiation enteritis
- C. Lymphoma
- D. Mastocytosis
- E. Amyloid

No.: 74

D

The picture shows stricture with ulceration, and also dilation of SB (small bowel) loop in pelvis .

And also loops of bowel are far apart from each other (thickened wall) .

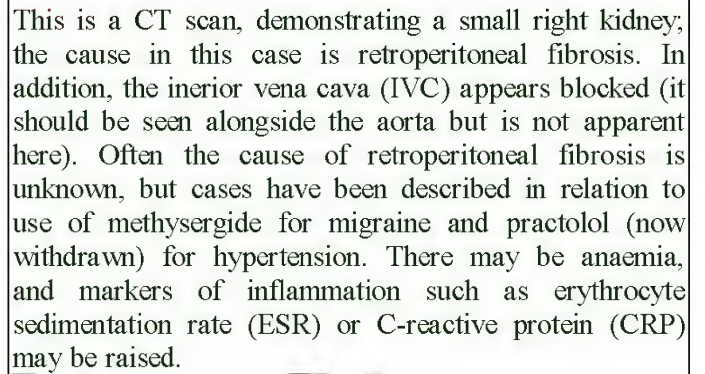
Causes of multiple loops of SB with thickened walls and thickened folds :

- \*IBD (inflammatory bowel disease)
- \*Infection, e.g. actinomycosis
- \*Radiation
- \*Infiltration - Amyloid
- \*Lymphoma

Mastocytosis - is a cause of nodules and not stricture and ulceration.

No.: 75

C



R

- 1:47:17  
1.00  
5.00

No.: 76

A 64-year-old woman presents with episodes of watery diarrhoea, feeling wheezy and flushed over her face and neck. Between these episodes she feels well. There is a diastolic murmur on cardiac auscultation which increases on inspiration and palpable hepatomegaly with right upper quadrant tenderness .

Which of the following investigations is the most appropriate:

Options

- A. Urinary 5-HIAA
- B. Serial blood cultures
- C. Urinary vanillylmandelic acid (VMA)
- D. Thyroid function tests
- E. Liver function tests

No.: 76

A This is the classical magnetic resonance cholangiopancreatography (MRCP) case for carcinoid, with a story of someone (perhaps seen in hypertension clinic) who presents with episodic hypertension, wheeze, diarrhoea and flushing. This was thought to be due to 5-HT secretion by the tumour into the circulation, but probably also represents a kinin-mediated effect. Urinary VMAs were previously used to diagnose Phaeos but now 24 hour collection of catecholamines are used. This patient has right sided valvular fibrosis leading to the murmur.

No.: 77



What is the diagnosis:

Options

- A. Multiple renal stones
- B. Nephrocalcinosis - medullary sponge kidney
- C. Nephrocalcinosis - hyperparathyroidism
- D. Nephrocalcinosis - renal tubular acidosis (RTA)
- E. Multiple gallstones

No.: 77

E

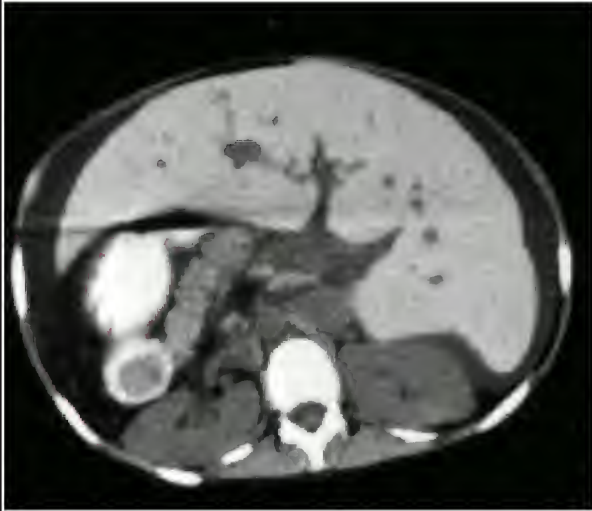
Differential diagnosis :

- \*RUQ (right upper quadrant) calcification: Adrenal, Renal, Pancreas, Biliary Tree including GB (gallbladder)
- \*Renal stones: homogenous density, rarely smooth and rounded
- \*Nephrocalcinosis: follow outline of kidney

Gallstones :

- \*Lamellated
- \* dense outer border

No.: 78



What is the likely diagnosis in this man with diabetes:

Options

- A. Chronic pancreatitis
- B. Cirrhosis
- C. Haemochromatosis
- D. Pancreatic duct dilation
- E. Budd Chiari

No.: 78

**C**

CT abdomen - hard pushed to diagnose Budd Chiari or pancreatic duct dilation

A, B & C can all be associated with diabetes mellitus (DM)

Pancreas is plump and healthy, no calcification (therefore not pancreatitis)

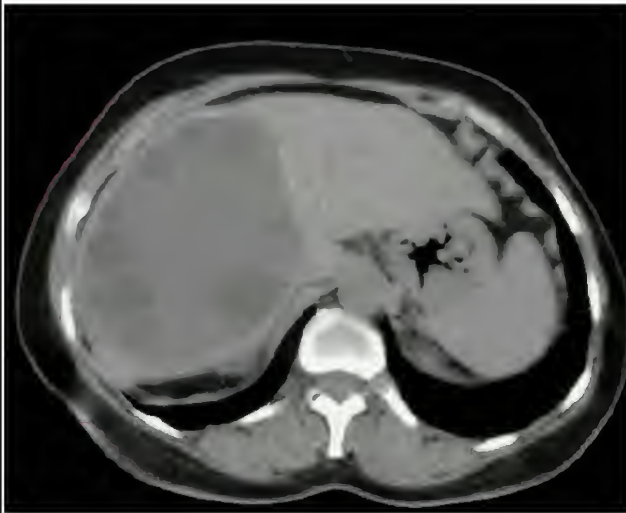
Cirrhosis - is a possibility, but haemochromatosis is a more specific cause

Liver is very bright (white) in cf. with rest of abdomen - iron deposition





No.: 79



What is the most likely diagnosis in this middle-aged Egyptian man:

Options

- A. Hepatocellular carcinoma (HCC)
- B. Lymphoma post radiotherapy (RT)
- C. Carcinoma colon metastasis post RT
- D. Hydatid cyst
- E. Biliary atresia

No.: 79

**D**

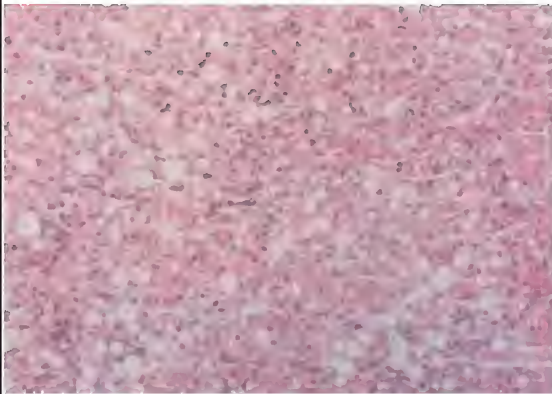
The features supporting the diagnosis of hydatid disease is :

- \*Single lesion
- \*Neat border (HCC, Lymphoma mets unlikely)
- \*Daughter cysts
- \*Calcified rim

Biliary atresia - unlikely to cause single area of dilation within liver, should be global.



No.: 80



A 43-year-old Kenyan lady c/o non-specific abdominal pain for 6 months. Type 2 diabetes was diagnosed 5 years ago and controlled on gliclazide and metformin. Her BMI was 29kg/m<sup>2</sup>. Her only abnormal blood results were: ALT 105 IU/L, Bili 27mmol/L GGT 80. A full liver screen was negative. A liver biopsy was performed.

What would you do next:

Options

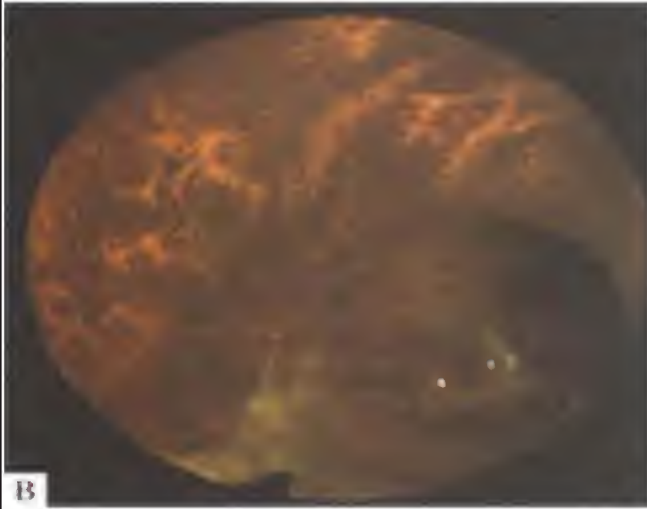
- A. Monitor LFT and reassure her of the benign prognosis
- B. Tell her she must achieve significant weight loss
- C. Monitor LFT and warn the patient that the disease may progress to cirrhosis in 25 % of cases
- D. Switch her oral hypoglycaemic agents to insulin
- E. Request an ultrasound of the liver

No.: 80

B

This lady is obese with type 2 diabetes. The liver biopsy shows fatty infiltration. This is very common in type 2 diabetes. There is no need to ultrasound her liver or change her diabetes therapy. A proportion of these cases may progress to steatohepatitis, for this reason significant weight loss is advised.

No.: 81



A 25-year-old health assistant is referred for persistent diarrhoea. Her BMI is 18kg/m<sup>2</sup>. Her routine blood investigations were all normal except for a K<sup>+</sup> of 2.9mmol/L. Flexible sigmoidoscopy is performed. What would you request next:

Options

- A. Gastroscopy with D2 biopsies
- B. Thyroid function test (TFT)
- C. Endomysial antibodies
- D. Laxative screen
- E. Barium follow through

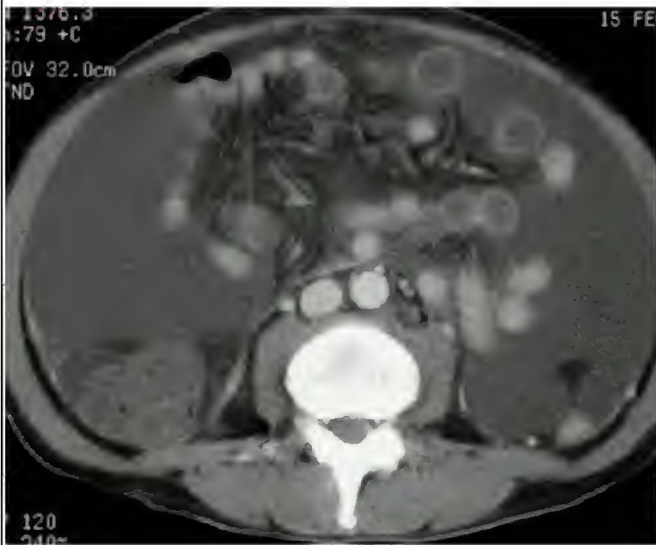
No.: 81

D

The sigmoidoscopy shows melanosis coli, associated with laxative abuse. Her low potassium is probably all due to the diarrhoea.



No.: 82



This is the CT scan of a man with a distended abdomen clinically. What is the abnormality:

Options

- A. Right renal carcinoma
- B. Retroperitoneal lymphadenopathy
- C. Retroperitoneal fibrosis
- D. Prostate metastasis
- E. Ascites

No.: 82

E

Small bowel filled with contrast, floats in ascites .

On CT :

- \*Fluid is grey
- \*Fat is black
- \* Contrast and bone is white





No.: 83



This patient has a history of many years of intermittent jaundice. What is the investigation and diagnosis:

Options

- A. MRCP (magnetic resonance cholangiopancreatography), cholangitis
- B. PTC (percutaneous transhepatic cholangiogram), cholangitis
- C. MRCP, Caroli's disease
- D. PTC, Caroli's disease
- E. PTC, gallstone causing biliary-renal fistula

No.: 83

D

MRCP vs PTC

\*PTC - done under X-ray guidance, needle inserted percutaneously into biliary tree, therefore, will see bones as well, may even see needle .

\*MRCP - patient is untouched, lies on MRI, very fluid-weighted images are obtained, therefore, only fluid-filled structures are visualised (e.g. biliary tree, bowel, ureter) .

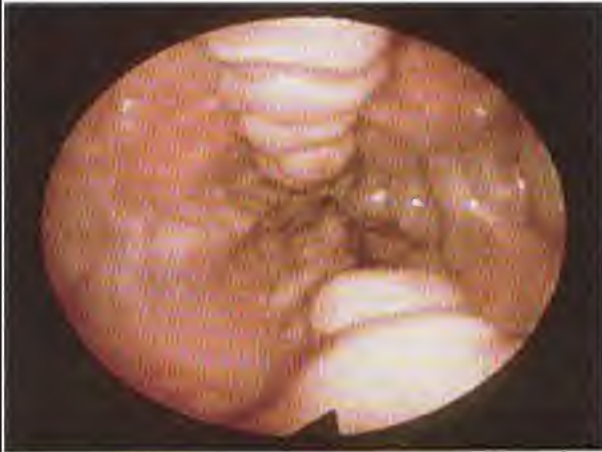
Caroli's :

\*Congenital cystic dilation of major intrahepatic ducts often with choledochal cyst

\*CBD (common bile duct) ok (cf. biliary obstruction)

Cholangitis - irregular walls, intra- and extrahepatic ducts are not particularly dilated.

No.: 84



A 45-year-old lady is referred for investigation of intractable pruritus. Her liver function tests (LFTs) were abnormal :

Bilirubin 60

ALP 624

ALT 65

Albumin 35

Other results were :

Antimitochondrial AB positive at 1:1250

Hep ABC negative

Ferritin normal

Copper studies normal

Liver U/S normal

AAT genotype MM phenotype

AFP normal

What would you do next:

Options

- A. Request a therapeutic endoscopy and specialist hepatology review
- B. Start a beta-blocker
- C. Start bisphosphonates
- D. Request an U/S of her portal vein
- E. Start ursodeoxycholic acid

No.: 84

A

This lady has gross varices on endoscopy which are at risk of haemorrhage. This is due to primary biliary cirrhosis, typified by her anti-mitochondrial antibodies, markedly raised alkaline phosphatase and marked itching. Therapeutic endoscopy with banding has been shown to reduce risk of bleeding with regular review. She should be followed up by a hepatologist. Ursodeoxycholic acid has been shown to improve bilirubin and transaminases but has no effect on symptoms. Liver transplant is the only therapy long term and guidelines state that it should be offered at bilirubin of >100.



No.: 85



A 76-year-old is referred with melaena and a history of weight loss. She is taking non-steroidal anti-inflammatory drug (NSAID) for osteoarthritis (OA) of her left hip. Her oesophagogastrroduodenoscopy (OGD) is shown here and her CLO test is positive and there is no evidence of malignancy on biopsies:

#### Options

- A. Eradicate *Helicobacter pylori* (HP) and discharge
- B. Stop NSAIDs, HP eradicate and repeat OGD in 8 weeks
- C. Stop NSAIDs, start COX-2 inhibitors and discharge on PPI
- D. Continue NSAID and start PPIs
- E. Stop NSAIDs, eradicate HP and discharge

No.: 85

B

There is extensive ulceration. In a lady who has OA of the hip there is little advantage in using NSAIDs in preference to simple analgesics and further NSAID scripts should be avoided. Although COX-2 inhibitors are associated with less GI ulceration, there is ulceration reported nonetheless, and these drugs should be avoided. In view of the history of weight loss and the quite extensive ulceration, further endoscopy is recommended in 8 weeks. HP eradication is a course of 2 antibiotics combined with PPI, choice of antibiotic depends upon local policy and resistance to antibiotics commonly used.

No.: 86



A 71-year-old man presents with jaundice, itching, dark urine and clay like stools. What is shown on the CT scan :

Options

- A. Primary hepatocellular carcinoma
- B. Dilated intra-hepatic bile ducts
- C. Metastatic carcinoma
- D. Dilated Common bile duct
- E. Cholangiocarcinoma

No.: 86

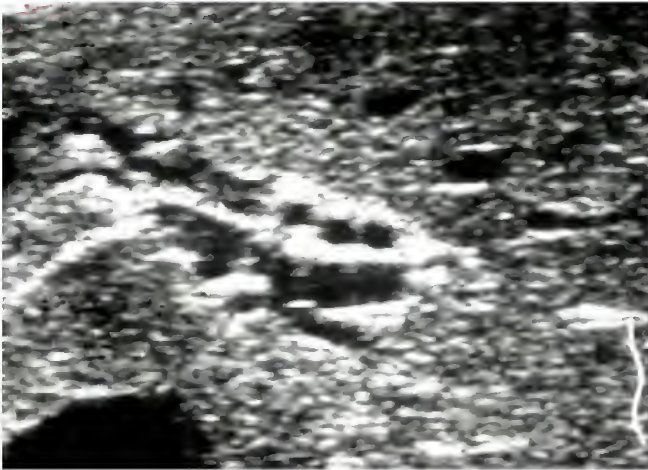
**B**

There is marked intrahepatic bile duct dilatation in keeping with an obstructed biliary tree, however the cause is not visible on this scan.





No.: 87



This HIV (human immunodeficiency virus) positive man was admitted to ITU with deranged liver function tests (LFTs). This investigation was performed in the ward. What is the investigation and diagnosis:

Options

- A. T1W MRI, liver cirrhosis
- B. US (Ultrasound), cholangitis
- C. US, liver cirrhosis
- D. T1W MRI, cholangitis
- E. T1W MRI, portal vein thrombosis

No.: 87

B



No.: 88



What is the investigation and diagnosis:

Options

- A. MRCP (magnetic resonance cholangiopancreatography), gallstones, biliary obstruction
- B. PTC (percutaneous transhepatic cholangiography), gallstones, biliary obstruction
- C. PTC, pancreatic CA
- D. MRCP, pancreatic CA
- E. MRCP, sclerosing cholangitis

No.: 88

A

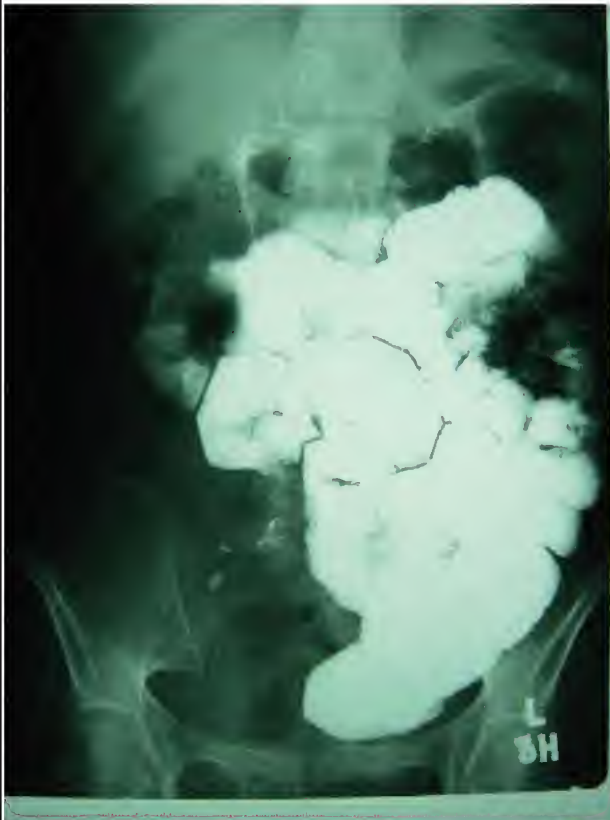
MRCP vs PTC

\*PTC - done under X-ray guidance, needle inserted percutaneously into biliary tree, therefore, will see bones as well, may even see needle .

\*MRCP - patient is untouched, lies in MRI (easy to see anatomy), very fluid-weighted images are obtained, therefore, only fluid filled structures are visualised (e.g. biliary tree including gallbladder [GB], bowel, ureter)

Filling defects in GB and CBD (common bile duct), which is dilated above the stone, but normal calibre below.

No.: 89



What is the diagnosis that you can infer from the radiological picture:

Options

- A. Crohn's disease
- B. Lymphangiectasia
- C. Lymphoma
- D. Coeliac disease
- E. Waldenstrom's macroglobulinaemia

No.: 89

D

SB (small bowel) follow through :

- \*to T1 within 1.5 hr
- \*slow transit >1.5 hours

SB is dilated, featureless .

Causes of dilated slow SB: [SOS [

- \*Sprue
- \*Obstruction
- \*Scleroderma

Coeliac disease :

- \*Malabsorption due to small intestinal villi atrophy
- \*Onset: childhood & 30 - 40 years
- \*Symps: diarrhoea, steatorrhea, wt loss
- \*Clinical finding: anaemia (Fe/folate/B12 deficiency), neuropathy, depression, osteomalacia
- \*Location: duodenum & jejunum>, rest SB
- \* Radiology of coeliac: slow dilated featureless SB

No.: 90



What is the diagnosis that can you infer from the X-ray given:

Options

- A. Large bowel obstruction
- B. Small bowel obstruction
- C. Ileus
- D. CT pneumocolon
- E. Toxic megacolon

No.: 90

A

Plain film, not CT

Dilated bowel predominantly around the edges of the abdomen (large bowel [LB]) cf. Small bowel (SB) dilation - central

Dilated bowel - very large calibre - LB

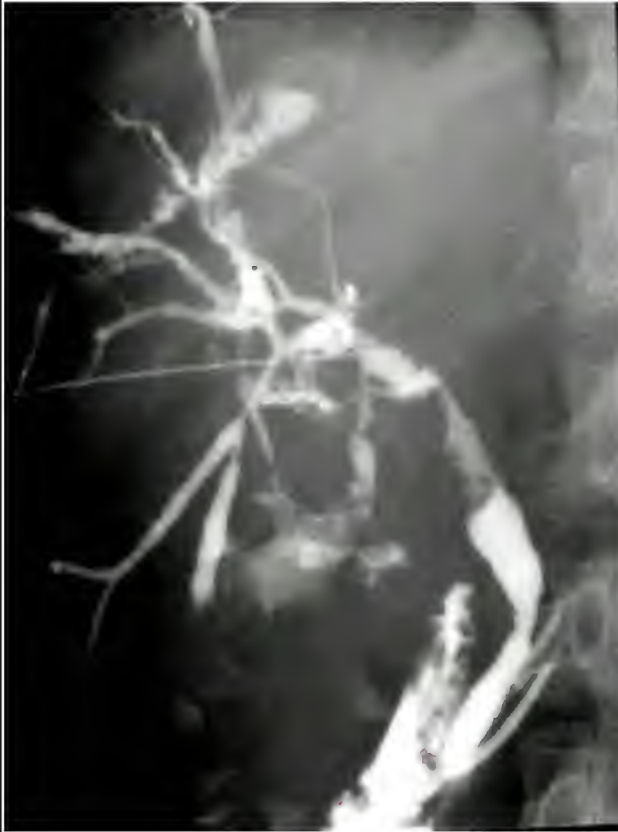
Toxic megacolon - should have very thick wall

Causes of LBO (large bowel obstruction) :

- \*CA
- \*Diverticular mass
- \* Intussusception



No.: 91



What is the most likely diagnosis:

Options

- A. Sclerosing cholangitis
- B. Choledochal cyst
- C. Choledochocoele
- D. Primary biliary cirrhosis
- E. Gallstone ileus

No.: 91

A

This radiological photo shows percutaneous transhepatic cholangiography (PTC), showing intra and extrahepatic ducts:

- \*stenosis
- \*dilation
- \*beading
- \* pruning

No.: 92



What is the possible cause:

Options

- A. Large bowel obstruction
- B. Small bowel obstruction
- C. Gallstone ileus
- D. CT pneumocolon
- E. Toxic megacolon

No.: 92

B

SBO (Small Bowel Obstruction) :

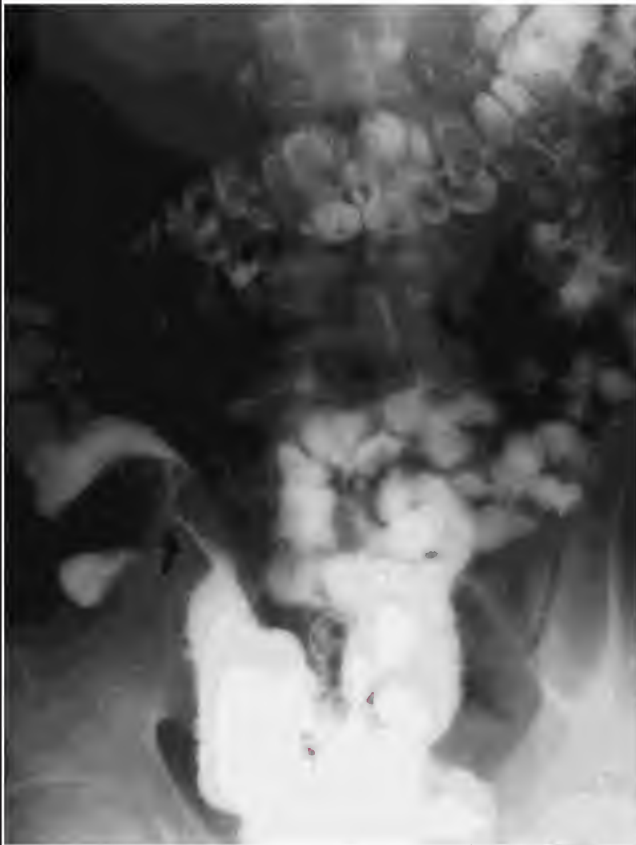
- \*Central, dilated loops of bowel
- \*not as dilated as LB (large bowel)
- \*see valvulae conniventes (all the way across bowel, cf. haustrae/taenia of LB do not go all the way across bowel)
- \*2 most common causes: adhesions, herniae

Most common cause (MRCP): gallstone ileus

Should see gallstone in distal SB, possibly air in biliary tree



No.: 93



Which region of the bowel is affected?

Options

- A. Duodenum
- B. Stomach
- C. Jejunum
- D. Ileum
- E. Large bowel

No.: 93

D

The region affected is the ileum and it shows the extension into the ileocaecal region showing stricturing and ulceration .

Terminal ileal disease :

- \*Crohn's
- \*TB
- \*Lymphoma
- \* Actinomycosis



No.: 94

A 46-year-old man with a family history of haemochromatosis presented to outpatient for advice.

Investigations revealed :

serum ferritin 453ug/L (15 - 300)

serum iron 29 umol/L (12 - 30)

serum iron binding capacity 46 umol/L (45 - 75)

iron saturation 63 per cent (20 - 50)

What is the most appropriate next step in management:

Options

A. Arrange for DNA analysis

B. Begin a venesection programme

C. Monitor his serum ferritin regularly

D. Take no action unless the iron saturation exceeds 90 per cent

E. Undertake a liver biopsy

No.: 94

A

This man is likely to have hereditary hemochromatosis (HHC). This is an autosomal recessive disorder of adult onset. It is characterised by inappropriately high intestinal iron absorption with deposition in multiple organs including the liver, heart, pancreas, pituitary, joints and skin. Cirrhosis is the major cause of death .

A homozygous mutation (C282Y mutation) of the human iron gene (HFE gene-chromosome 6) accounts for over 80% of cases of HHC. It is the most common single gene disorder in Caucasians. The diagnosis is made on DNA analysis. A liver biopsy is not required to diagnose HHC although may be indicated for prognostic reasons if cirrhosis is suspected .

Lab studies: Serum iron is elevated (>30 mmol/L); serum ferritin is elevated (usually >500 mg/L or 240 nmol/L); TIBC is reduced and there is complete or almost complete transferrin saturation (>60%) .

The goal of therapy is to remove the iron before it can produce irreversible parenchymal damage. This is achieved by regular venesection maintaining ferritin levels of 50-100 g/L. In the rare patient who cannot tolerate venesection (because of severe cardiac disease or anaemia), chelation therapy with desferrioxamine either intermittently or continuously by infusion has been successful in removing iron. Patients should limit alcohol consumption.



No.: 95



This 55-year-old gentleman was seen by a stoma nurse for assessment of his ileostomy. He complained of a two-day history of this skin lesion on his right shin. What is the diagnosis:

Options

- A. Erythema nodosum
- B. Erythema ab igne
- C. Insect bite
- D. Pyoderma gangrenosum
- E. Pretibial myxoedema

No.: 95

A

This is clearly erythema nodosum; the history of ileostomy suggests previous surgery for inflammatory bowel disease, a well recognised association. Other associated conditions include streptococcal sepsis, drugs including sulphonamides, oral contraceptives and non-steroidal anti-inflammatory drugs (NSAIDs), sarcoidosis, leprosy, Yersinia infection, Chlamydia infection and tuberculosis (TB). The underlying cause should be addressed but other therapies for which there is some evidence include prednisolone, dapsone and colchicine.



No.: 96



This 21-year-old young lady presented with 2 episodes of fresh blood PR. Which of these tests would you do next:

Options

- A. Gastroscopy and colonoscopy
- B. Colonoscopy
- C. Flexible sigmoidoscopy
- D. Gastroscopy
- E. Proctoscopy

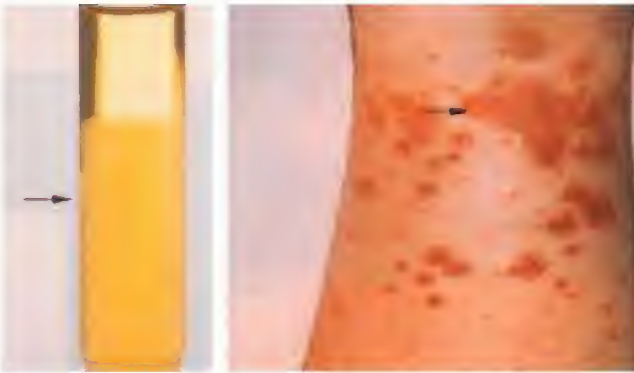
No.: 96

A

The pattern of peri-oral pigmentation is highly suggestive of Peutz-Jeghers syndrome. The cause is a serine protein kinase defect due to a mutation in gene LKB1. The syndrome consists of muco-cutaneous pigmentation in the circum-oral region, hands and feet and polyps that can occur anywhere in the GI tract, most commonly in the small bowel with an autosomal dominant pattern of inheritance. The polyps are hamartomas but they may occasionally contain areas of dysplasia that can be pre-malignant. Treatment is by excision of individual polyps. Small bowel obstruction and intussusception are infrequent complications.



No.: 97



These lesions appeared on the lower limbs of a 23-year-old intravenous drug user (IVDU) c/o abdominal pain. Her LFT were as follows :

Bilirubin 34

ALT 140

ALP 56

Alb 38

What investigation would you request:

Options

- A. Hepatitis C serology
- B. HIV test
- C. Autoantibody screen
- D. Se protein electrophoresis
- E. Urine microscopy

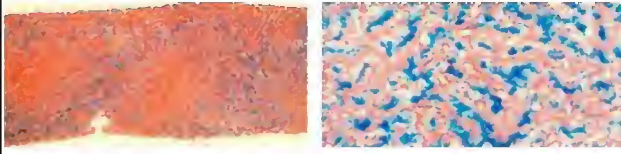
No.: 97

A

The skin lesions look vasculitic in origin. She almost certainly has mixed cryoglobulinaemia and glomerulonephritis associated with it, the cause is hepatitis C infection and this is a well recognised association. Hepatitis C serology is necessary as treatment with ribavirin and interferon therapy as well as treating liver pathology also reduces the severity of extra-hepatic manifestations of hepatitis C, such as the glomerulonephritis in this case. Patients who are polymerase chain reaction (PCR) positive for hepatitis C RNA respond better to antiviral therapy. Hepatitis C is also associated with porphyria cutanea tarda and lichen planus.



No.: 98



A 43-year-old Caucasian lady presents with a 2-week history of progressive jaundice. Over the past 2 years she has been drinking 3L of whisky per week. Her blood results were :

Bilirubin 326

Albumin 28

ALP 388

GGT 465

INR 1.3

Ferritin 1526

Hb 12.8

MCV 117

Ultrasound showed hepatomegaly with fatty change and ascites. Her liver biopsy is shown. What would you do next:

Options

- A. Monitor LFT and advice alcohol rehabilitation
- B. Arrange for HFE genetic testing
- C. CT scan abdomen
- D. Refer for liver transplant
- E. Refer for venesection

No.: 98

B

This lady has haemochromatosis with hepatic iron accumulation as evidenced by her biopsy with iron staining. It is possible to assess the degree of iron accumulation within the liver and calculate a hepatic iron index. She is likely to be a heterozygote carrying one abnormal gene, and her slide into alcoholism has accelerated her demise. Ferritins are often raised in simple alcoholic cirrhosis, but in the presence of the liver biopsy and a ferritin raised to that degree, the most likely diagnosis is haemochromatosis .

However, definitive diagnosis with HFE gene testing is still recommended as alcoholics who drink a lot of red wine (with high iron content) may also have hepatic Fe accumulation. There may also be a need to screen family members if a genetic abnormality is identified.



No.: 99



This woman was admitted with anaemia. What is the cause:

Options

- A. NSAID associated enteropathy
- B. Anaemia of chronic disease
- C. Marrow toxicity due to methotrexate
- D. Felty's syndrome
- E. Autoimmune haemolysis

No.: 99

A

She clearly has osteoarthritis. She is most likely to be using non-steroidal anti-inflammatory drugs (NSAIDs), so that NSAID enteropathy is the most likely cause. The rest are complications of rheumatoid disease or of the treatment of rheumatoid disease.

No.: 100



No.: 100

A

It is a Lateral X-ray of the spine showing vertebrae .

\*Diagnosis is Osteomalacia/Rickets in child .

\*Radiological appearances: Codfish vertebrae, osteopenic vertebrae, biconcave loss of height, Pencilled-in margins .

Causes of Osteomalacia: Vit D deficiency (dietary/malabsorption), Renal disease (Glom/Tubular), Hepatic disease, Anticonvulsants.

Which of the following is not a possible cause of the radiological findings - :

Options

- A. Ulcerative colitis
- B. Cystic fibrosis
- C. Chronic pancreatitis
- D. Vit D deficiency
- E. Renal tubular acidosis

No.: 101



A 37-year-old gay man presents to the genitourinary medicine clinic with loose stools. His CD4 count is 200. What is shown in sigmoidoscopy examination:

Options

- A. Angiodysplasia
- B. Colonic polyp
- C. Kaposi's sarcoma
- D. Colitis
- E. Familial polyposis syndrome

No.: 101

C

Kaposi's sarcoma (KS) is an acquired immunodeficiency syndrome (AIDS)-defining illness. It is a cancerous condition that can develop on the skin or inside the body. KS on the skin is not a physically serious problem. KS in the internal organs can be life threatening. KS appears as lesions or spots that may look like bruises. It can also develop in mucosal tissue like the lining of the mouth, in lymph nodes, or in internal organs like the bowel, lungs, or liver. The lesions may be the result of an overgrowth of blood vessels. KS in the stomach or gut may cause pain or bleeding. Biopsy is required for diagnosis. Chemotherapy is used to treat widespread KS or KS of the internal organs, but response is often unsatisfactory. Opportunistic infections become prevalent as CD4 count falls; these include cytomegalovirus, tuberculosis, systemic candidiasis and MAI, amongst a number of others.

No.: 102

A 20-year-old Caucasian woman presented with intermittent abdominal pain, bloating and alternating constipation and loose stools. Clinical examination was normal. Her C-reactive protein (CRP) was 50. Faecal calprotectin was measured at 10 times upper limit of normal and small bowel permeability was increased. What is the most likely diagnosis:

Options

- A. Irritable bowel syndrome
- B. Ameobiasis
- C. Appendicitis
- D. Crohn's disease
- E. Colon cancer

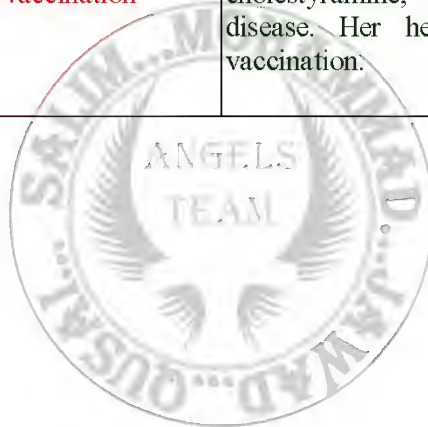
No.: 102

D

The clinical presentation in this case could very well be due to irritable bowel syndrome and fits in with the ROME II criteria. The ROME criteria were drawn up to allow easy evaluation of functional bowel disease. Going against this however is the increased gut permeability, suggesting small inflammation. Faecal calprotectin is a cytoplasmic protein from neutrophils which is almost always increased with colonic inflammation. Combining these two investigations and the age of the patient the most likely diagnosis here is in fact Crohn's disease.

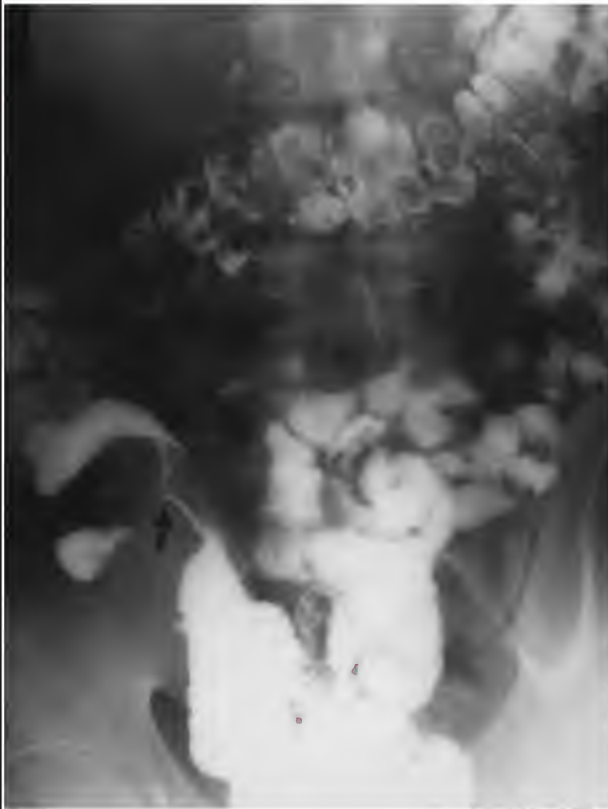


<p>No.: 103</p> <p>A 50-year-old A&amp;E sister saw the gastroenterologist because of abnormal liver tests. Her tests showed :  ALT 20  Bilirubin 14  GGT 150  ALK PO4 340</p> <p>Her antibody to HBsAg was positive. Total cholesterol and immunoglobulins were high. Her anti mitochondrial antibody was strongly positive. What is the most likely explanation for her abnormal findings?</p> <p>Options</p> <p>A. Chronic hepatitis B  B. Acute hepatitis B  C. Auto immune hepatitis  D. Primary biliary cirrhosis  E. Primary biliary cirrhosis and Hep B vaccination</p>	<p>No.: 103</p> <p>E</p> <p>Primary biliary cirrhosis is a disease mainly of middle-aged women. The hallmark of the disease is the presence of anti mitochondrial antibody, which is seen in almost 95% of cases. Three common forms of presentation exist :</p> <ul style="list-style-type: none"> <li>*The chance of finding elevated serum alkaline phosphatase</li> <li>*Itching with or without jaundice</li> <li>*End stage liver disease .</li> </ul> <p>As a result of cholestasis the serum cholesterol will be very high and xanthelasma are often found. Fat malabsorption is severe in advanced disease and osteoporosis is a common problem .</p> <p>Treatment options are ursodexycolic acid and cholestyramine; liver transplantation for end stage disease. Her hepatitis B serology reflects previous vaccination.</p>
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No.: 104



This patient has presented with intermittent sub-acute obstruction; she is 32. She has some radiological investigations to determine which part of the bowel is affected. What region of the bowel is affected:

Options

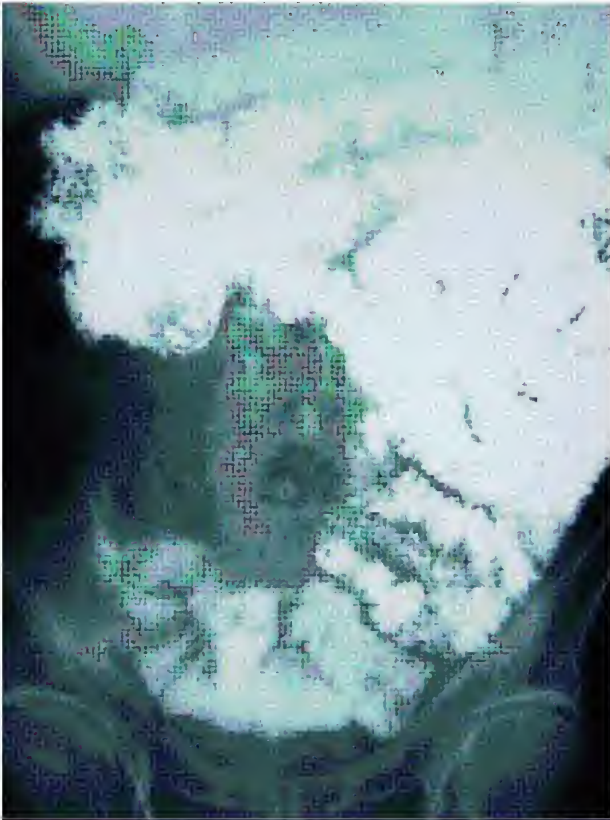
- A. Duodenum
- B. Stomach
- C. Jejunum
- D. Ileum
- E. Large bowel

No.: 104

**D**

There appears to be extrinsic compression of the lumen of terminal ileum. Causes of terminal ileal disease include Crohn's, tuberculosis (TB), lymphoma and actinomycosis. Features of terminal ileal disease in Crohn's include anaemia with deficiency of iron and/or folate and other associations include arthropathy, erythema nodosum and eye disease, with uveitis occurring in around 5% of Crohn's disease cases. A chest X-ray, sputum and early morning urine samples would be an important part of screening for TB. Diagnosis of actinomycosis is by microscopy and culture of organisms from an infected area.

No.: 105



This barium follow through shows multiple small bowel nodules. Which of the following is not a cause:

Options

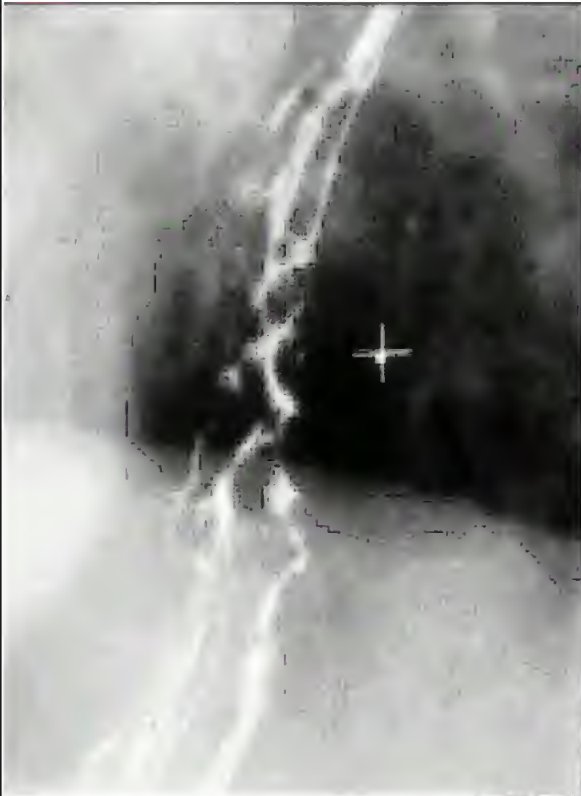
- A. Lymphoma
- B. Lymphangiectasia
- C. Mastocytosis
- D. Coeliac disease
- E. Eosinophilia

No.: 105

D

Causes of multiple bowel nodules include lymphoma, lymphangiectasia, mets (melanoma), mastocytosis, polyposis, Peutz-Jeghers (hamartomas), Waldenstrom's, Whipple's disease, Yersinia, eosinophilia and typhoid. Coeliac disease causes villous atrophy but is not associated with small bowel nodules.

No.: 106



A 50-year-old man presents for radiological investigation, he has a long history of alcohol abuse. What is the diagnosis:

Options

- A. Oesophageal candidiasis
- B. Oesophageal stricture
- C. Oesophageal carcinoma
- D. Oesophageal varices
- E. Oesophageal leiomyoma

No.: 106

D

This barium swallow shows worm-like changes in filling, consistent with oesophageal varices. The portal venogram confirms the diagnosis with multiple dilated veins predominantly in the lower third oesophagus and stomach. Carcinoma, stricture or leiomyoma would be expected to produce a focal defect, and here the barium shows a smooth outline to the oesophagus with no evidence of narrowing.





No.: 107

A 66-year-old man with known alcoholic liver disease is admitted following a fit. He is drowsy and confused. There is no other history available. On examination, he smells of alcohol. He is afebrile, jaundiced with bilateral Dupuytren's contractures. He opens his eyes to command, is making incomprehensible sounds, and localises pain. He is unkempt. His pulse is irregularly irregular. He has shifting dullness to percussion of his abdomen, a caput medusae and multiple spider naevi. He is admitted and placed on intravenous vitamin replacement and IV fluids. The next morning, he is unresponsive. There is no focal neurological deficit to find on examination.

What single test would you carry out immediately:

Options

- A. CT scan of the brain
- B. Blood cultures
- C. Electroencephalogram (EEG)
- D. Blood glucose
- E. Red cell transketolase

No.: 107

**D**

Hypoglycaemia associated with alcoholic liver disease would be immediately remediable with intravenous glucose. Finger prick testing can be carried out on the ward, closely followed by venous blood glucose from the lab very quickly. CT scan is important, to rule out subdural haemorrhage as an associated possible condition. EEG would exclude fitting, blood cultures, and infection. Red cell transketolase is useful in establishing the cause of anaemia, but is in no way an immediate test - you would give IV thiamine anyway before giving glucose, just in case Wernicke-Korsakoff syndrome was a possibility.







No.: 108

A 35-year-old man presents with a 3-month history of diarrhoea up to 8 times a day, with blood and mucus in the stool. He has lost about 1 stone in weight since the onset of his symptoms, and feels unwell. No one else in his family has had diarrhoea. He is a non-smoker who does not drink alcohol. He is married with 3 children. He works as a solicitor. He has not had any previous admissions or serious illnesses. On examination, cardiovascular and respiratory systems are normal. His abdomen is soft, tender on the left side, with no organomegaly or palpable masses. He has an empty rectum on digital examination. There are several raised dusky red areas around his ankles with surrounding bruising. Rigid sigmoidoscopy demonstrates inflamed mucosa to 14 cm, with a granular appearance. A biopsy is taken.

## Investigations :

Hb 11.4  
WCC 12.4  
Platelets 545  
MCV 96  
Na<sup>+</sup> 147  
K<sup>+</sup> 4.4  
Urea 6.8  
Creatinine 100  
CRP 54 (normal < 8)

Biopsy: acute inflammatory infiltrate to the lamina propria, with crypt distortion and crypt abscesses. No granulomata seen. What further investigation would you carry out:

## Options

- A. Barium enema
- B. Colonoscopy
- C. Small bowel meal and follow through
- D. Plain abdominal X-ray
- E. Biopsy of the skin lesions

No.: 108

The extent of the disease is shown at barium enema or colonoscopy and the latter gives a chance to inspect directly and take biopsies. A plain abdominal film is also vital in anyone with bloody diarrhoea and systemic illness to rule out a toxic megacolon. Granuloma on biopsy occur in only 30% of crohn's. In the absence of a megacolon, oral mesalazine and steroids are the best starting point. Sclerosing cholangitis is associated with ulcerative colitis in 70% of cases. The majority are men. Diagnosis is by ERCP or PTC showing beaded dilated bile ducts. The ANA and ANCA are often positive. There is an increased risk of cholangiocarcinoma in sclerosing cholangitis sufferers. The leg rash is almost certainly due to erythema nodosum.





No.: 109

A 35-year-old man presents with a 3-month history of diarrhoea up to 8 times a day, with blood and mucus in the stool. He has lost about 1 stone in weight since the onset of his symptoms, and feels unwell. No one else in his family has had diarrhoea. He is a non-smoker who does not drink alcohol. He is married with 3 children. He works as a solicitor. He has not had any previous admissions or serious illnesses. On examination: Cardiovascular and respiratory systems are normal. His abdomen is soft, tender on the left side, with no organomegaly or palpable masses. He has an empty rectum on digital examination. There are several raised dusky red areas around his ankles with surrounding bruising. Rigid sigmoidoscopy demonstrates inflamed mucosa to 14 cm, with a granular appearance and small aphthous ulcers. A biopsy is taken.

## Investigations :

Hb 11.4  
WCC 12.4  
Platelets 545  
MCV 96  
Na<sup>+</sup> 147  
K<sup>+</sup> 4.4  
Urea 6.8  
Creatinine 100  
CRP 54 (normal < 8)

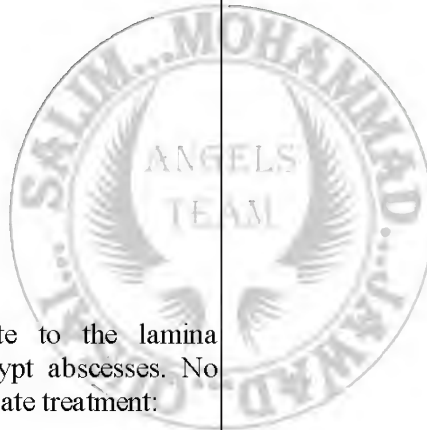
Biopsy: acute inflammatory infiltrate to the lamina propria, with crypt distortion and crypt abscesses. No granulomata seen. Suggest an appropriate treatment:

## Options

- A. Intravenous mesalazine
- B. Oral prednisolone therapy and oral mesalazine
- C. Immediate colectomy
- D. Oral metronidazole and ciprofloxacin
- E. Oral salazopyrin

No.: 109

This gentleman most likely has an acute presentation of ulcerative colitis (UC). A plain abdominal film is an essential investigation to rule out toxic megacolon but as long as this is satisfactory then the most appropriate treatment is oral prednisolone and mesalazine. The extent of the disease is shown at barium enema or colonoscopy however the plain abdominal film should give you some idea. In the longer term sclerosing cholangitis is associated with UC in 70% of cases. The majority are men. Diagnosis is by endoscopic retrograde cholangiopancreatography (ERCP) or percutaneous transhepatic cholangiography (PTC) showing beaded dilated bile ducts. The ANA and ANCA are often positive. There is an increased risk of cholangiocarcinoma in sclerosing cholangitis sufferers.



No.: 110



This 45-year-old man c/o change in bowel habits and rectal bleeding. What is the investigation to be done and diagnosis:

Options

- A. Barium enema/ulcerative colitis
- B. Barium follow through/Crohn's
- C. Barium follow through/rectal carcinoma
- D. Barium enema/rectal carcinoma
- E. Barium enema/caecal carcinoma

No.: 110

D

The radiological findings show 'Apple Core' lesion in the rectum typical of carcinoma, rest of bowel is normal .

Inflammatory bowel disease (IBD) would cause continuous ulceration .

Barium enema - contrast via rectum, outlines LB (large bowel) .

Barium follow through - contrast taken orally, outlines stomach and SB (small bowel).

No.: 111



What is the diagnosis that can you infer from the radiology:

Options

- A. Oesophageal candidiasis
- B. Oesophageal stricture
- C. Oesophageal CA
- D. Oesophageal varices
- E. Oesophageal leiomyoma

No.: 111

A

Shaggy outline - (ulcerated)

Normal oesophagus - smooth outline

Entire oesophagus :

\*Stricture & CA = focal

\*Varices = lower third

\* Leiomyoma = submucosal, therefore, no mucosal ulceration





No.: 112

A 50-year-old man presented to his general practitioner with a 6-week history of epigastric discomfort. He had no past medical history of note and he was not taking any regular medication. He was referred for outpatient upper gastrointestinal endoscopy. This showed moderate duodenitis only. A test for the presence of *Helicobacter pylori* was positive and he was given a 7-day course of omeprazole, amoxicillin and clarithromycin. Four weeks later he was seen in outpatient clinic when he reported he was entirely asymptomatic .

What is the best option in the further management of this patient:

Options Choose 1

- A. Continue long-term acid suppression therapy
- B. Perform H. pylori breath test
- C. Reassure and discharge
- D. Repeat endoscopy
- E. Start alginate treatment

No.: 112

C

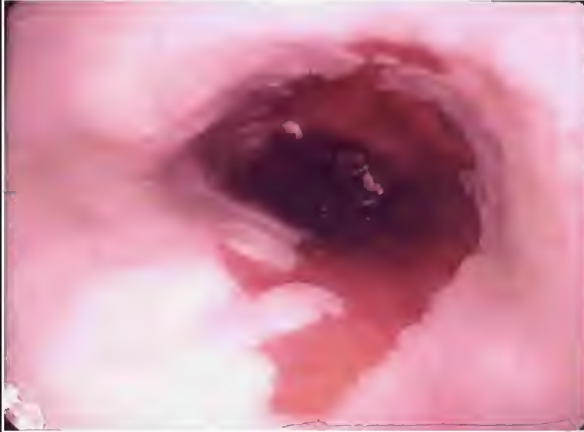
Repeat investigation should be symptom driven in a simple case like this.



No.: 113

A 58-year-old man undergoes upper gastrointestinal (GI) endoscopy for investigation of chest pain, reflux and mild dysphagia for solids. The picture shows the view from the mid-lower oesophagus .

What is the diagnosis:



Options Choose 2

- A. Achalasia
- B. Barrett's oesophagus ulceration
- C. Hiatus hernia
- D. Oesophageal candidiasis
- E. Oesophageal carcinoma.

No.: 113

**B E**

Barrett's oesophagus is the transformation of the normal squamous epithelium of the lower oesophagus into a columnar epithelium as seen in the stomach. In the picture, the abnormal columnar epithelium is the pink tissue, whereas the normal oesophageal epithelium is whiter.





No.: 114

A 38-year-old woman presents with a 4-week history of painless jaundice and pruritis. Her only past history of note is a pancolectomy for a severe episode of ulcerative colitis aged 19. She is teetotal. Her liver function tests (LFTs) are shown below .

Bilirubin 80 (1 ♦ 22 umol/l)

ALP 470 (5 ♦ 35 U/l)

GGT 290 (4 ♦ 35 U/l)

AST 84 (1 ♦ 31 U/l)

ALT 60 (5 ♦ 35 U/l)

What is the most likely diagnosis:

Options Choose 1

A. Alcoholic cirrhosis

B. Caroli's disease

C. Choledocholithiasis

D. Primary biliary cirrhosis (PBC)

E. Primary sclerosing cholangitis (PSC)

No.: 114

There is a well-defined association between colitis (UC) and PSC. PBC is clearly on the differential list but PSC should be the presumed diagnosis until proven otherwise.

No.: 115

A 56-year-old man was referred by his general practitioner (GP) for an outpatient endoscopy. The patient gave a 4-week history of worsening odynophagia and dysphagia. He attributed the onset of his symptoms to a course of antibiotics that he received from his GP for a sore throat 6 weeks previously. He had no other past medical history of note .

A full blood count performed by his GP had revealed pancytopenia .

Upper gastrointestinal endoscopy demonstrated extensive oesophageal candidiasis .

What further investigation, if any, is required:

Options

A. Barium swallow .

B. Check lymphocyte subsets .

C. HIV antibody test .

D. Reassure .

E. Repeat endoscopy in 4 weeks.

No.: 115

Oesophageal candidiasis is an AIDS-defining illness therefore HIV testing is absolutely essential.



No.: 116

A 34-year-old lady presented to hospital with severe right loin pain and haematuria. She had noticed some right loin discomfort 24 hours previously, but acute severe pain started 2 hours before admission. She denied having any dysuria, fever or rigors .

She had a past history of Crohn's disease, diagnosed when she was 18 years old. One year previously she had undergone an ileal resection after presenting with an acute exacerbation of Crohn's with an intestinal perforation. Her regular medication consisted of azathioprine 150 mg daily. She was married with 2 children, and smoked 5 cigarettes per day .

On examination she was afebrile. Pulse 100 beats per minute, regular. Blood pressure 115/65 mmHg. Heart sounds were normal and the chest was clear. Her abdomen was soft with no guarding but the right loin was tender to palpation .

#### Investigations :

Haemoglobin 11.9 g/dL  
 White cell count 7.8 x 10<sup>9</sup>/L  
 Platelets 290 x 10<sup>9</sup>/L  
 Serum sodium 140 mmol/L  
 Serum potassium 3.9 mmol/L  
 Serum urea 6.0 mmol/L  
 Serum creatinine 89 umol/L  
 ESR (Westergren) 10 mm/1st hour

Urinalysis showed blood and protein but was negative for white cells and nitrites. Microscopy did not demonstrate any white cells or organisms. A plain X-ray of the kidneys ureters and bladder (KUB) showed a radio-opacity adjacent to the right kidney .

She was treated with pethidine for pain relief and given intravenous fluids. Twelve hours later a stone passed spontaneously and her symptoms resolved .

What of the following would be most effective in preventing further renal calculi:

#### Options

- A. Allopurinol .
- B. Dietary exclusion of chocolate, tea, rhubarb and spinach .
- C. Increase daily oral fluid intake .
- D. Regular lithotripsy .
- E. Thiazide diuretic.

No.: 116

**B**  
 IBD and Crohn's in particular is associated with hyperoxaluria. Therefore, dietary oxalate reduction is the best answer in this case although the patient should also be counseled to increase their fluid intake.





No.: 117



This 37-year-old with a long history of inflammatory bowel disease presents in extreme distress to casualty. He is pyrexial with a massively distended and painful abdomen. This is his abdominal film, what is the diagnosis:

Options

- A. Large bowel obstruction
- B. Small bowel obstruction
- C. Toxic megacolon
- D. Chagas disease
- E. Transverse colitis

No.: 117

C

The large bowel is massively dilated with a thickened wall. There is a very great risk of perforation. Toxic megacolon is the only realistic diagnosis with this X-ray. Associated with inflammatory bowel disease there is mortality approaching 15-20%. Surgeons should be involved from the start and the patient should be subjected to colectomy if resolution does not begin with IV steroids within 48 hours or if vital signs deteriorate suggesting a perforation. Other causes include bowel ischaemia, clostridium difficile .

Causes: Inflammatory bowel disease (IBD), ischaemia, infection (clostridium).

No.: 118



This radiological film has come from a 50-year-old man. He has been admitted with right-sided abdominal pain. He works as a fryer in a chip shop and admits to intermittent right-sided pain going back a "couple of years :"

Options

- A. Multiple renal stones
- B. Nephrocalcinosis - medullary sponge kidney
- C. Nephrocalcinosis - hyperparathyroidism
- D. Nephrocalcinosis - renal tubular acidosis (RTA)
- E. Multiple gallstones

No.: 118

E

Differential diagnosis of calcification in the right upper quadrant includes renal, adrenal calcification or calcification within the biliary tree. Renal stones tend to be homogenous density, rarely smooth and rounded. Nephrocalcinosis follows the outline of the kidney. Gallstones are lamellated and have a dense outer border. This man clearly has gallstones and high fat diet, eating the products of the fish and chip shop may have had a part to play in this. He should be offered cholecystectomy in the future. With the size and number of gallstones however, this may be a little difficult as a laparoscopic procedure!

No.: 119



This lady presents with intermittent bloating and abdominal pain. She also has some trouble with indigestion and coldness of her hands in winter. In view of the investigations shown, what is the most likely diagnosis:

Options

- A. Systemic lupus erythematosus (SLE)
- B. Scleroderma
- C. Dermatomyositis
- D. Coeliac disease
- E. Crohn's disease

No.: 119

B

The small bowel shows a stack of coins/accordion pattern - sharply defined folds, tightly packed; this is due to circular muscle involvement due to the scleroderma. The condition can mimic small bowel obstruction. Also seen, but not demonstrated here are pseudodiverticulæ (sacculations due to asymmetrical smooth muscle atrophy), with co-existent blind loop syndrome and malabsorption. The hand X-ray shows some distal soft tissue calcification and some damage to the terminal phalanges due to the scleroderma. The indigestion is most likely due to oesophageal involvement and the problem with the hands due to Raynaud's phenomenon.



No.: 120



This patient is admitted with a long history of diarrhoea and weight loss. His barium investigation is shown below. On general examination you notice a few red marks on his shins. What is the diagnosis:

Options

- A. Ulcerative colitis
- B. Scleroderma
- C. Transverse colitis
- D. Ischaemic colitis
- E. Radiation enteritis

No.: 120

A

There is change throughout the colon, which begins at the rectum. On the left hand side there is acute change with an ulcerated, granular irregular bowel wall and hazy bowel contour due to increased secretions. On the right hand side there is symmetric narrowing of the colonic lumen with loss of normal haustrae consistent with chronic ulcerative colitis. The shin rash is due to erythema nodosum. The diagnosis is likely to be confirmed on biopsy and treatment of the acute episode is with intravenous corticosteroids. Chronically, these patients respond to 5-aminosalicylic acid compounds. There is increased risk of colorectal carcinoma in these patients, and particularly primary sclerosing cholangitis in male sufferers.



No.: 121



This 26-year-old intravenous drug abuser presents to his GP complaining of severe indigestion and inability to eat due to pain. What is the diagnosis:

Options

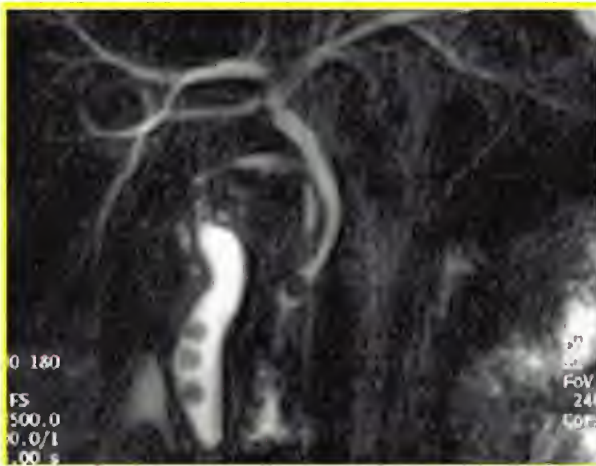
- A. Oesophageal candidiasis
- B. Oesophageal stricture
- C. Oesophageal carcinoma
- D. Oesophageal varices
- E. Oesophageal leiomyoma

No.: 121

A

This is a barium swallow and the oesophageal outline the whole way down looks shaggy due to ulceration. The usual cause of this appearance affecting the entire oesophagus is candidiasis. Strictures and carcinoma produce local change, leiomyoma is submucosal so the outline of the oesophagus is not affected, and varices give a worm like appearance, being confined largely to the lower third of the oesophagus. Oesophageal candidiasis is more common in the immunocompromised and may be seen in the elderly who use steroid inhalers but swallow most of the powder rather than inhaling it. Treatment is with a prolonged course of fluconazole. The IV drug abuser in this case should be counselled and screened for human immunodeficiency virus (HIV) infection.

No.: 122



This 45-year-old woman presented with intermittent right upper quadrant pain some months ago. This time she has presented to the casualty department with right upper quadrant pain and jaundice. What is the investigation and diagnosis?

Options

- A. MRCP, gallstones, biliary obstruction
- B. PTC, gallstones, biliary obstruction
- C. PTC, pancreatic CA
- D. MRCP, pancreatic CA
- E. MRCP, sclerosing cholangitis

No.: 122

A

This is a magnetic resonance cholangiopancreatography (MRCP), percutaneous transhepatic cholangiography (PTC) is done under X-ray guidance, needle inserted percutaneously into biliary tree, therefore will see bones as well, may see needle. In an MRCP the patient is untouched, lies in MRI (easy to see anatomy), very fluid-weighted images are obtained; therefore only fluid filled structures are visualised (e.g., biliary tree including gallbladder, bowel, ureter). This MRCP shows filling defects in the gallbladder and common bile duct (CBD), which is dilated above stone but normal calibre below.





No.: 123

A 23-year-old woman is admitted with jaundice and mild abdominal distension. She was entirely well until 5 days ago. She now feels unwell and nauseated. She is unmarried, but lives with her boyfriend, with whom she had been for 4 years. They have no children. She has not been abroad recently, and her boyfriend is entirely well. Apart from the oral contraceptive pill, she is not on any medication. She has never been to hospital before. She smokes tobacco, but denies alcohol consumption. On examination, she is jaundiced, afebrile, with no stigmata of chronic liver disease. BP 110 / 70. Pulse 68, cardiovascular, respiratory and neurological examinations normal. On examination of her abdomen, she is tender in her epigastrium, there is a palpable liver edge and spleen tip. There is some shifting dullness to percussion.

Investigations :

FBC :

Hb 12.3

WCC 13.4

Platelets 121

MCV 89

U&amp;E :

Na<sup>+</sup> 140K<sup>+</sup> 4.4

Urea 4.2

Creatinine 88

LFT :

Bilirubin 166

Alk Phos 430

ALT 43

Albumin 39

Coag :

INR 1.1

Aptt 26s (control 25s)

Ascites :

Microscopy &amp; culture : no growth

Protein 10 g/l

Cytology no abnormal cells

Urine: protein +, Blood +, Culture negative

Name one further investigation you would request to make the diagnosis:

Options

- A. Ultrasound of the liver, pancreas, spleen and biliary tree
- B. CT scan of the abdomen
- C. MRI of the biliary tree
- D. Viral hepatitis serology
- E. ERCP

No.: 123

A

Budd Chiari syndrome is the diagnosis to be considered here (hepatic vein thrombosis or obstruction). This presents as portal hypertension or as acute shock. The pill and smoking are both risk factors. She has no evidence of an acute hepatitis (the ALT is too low) and there is no evidence of alcohol (normal albumin, INR and MCV). Surgical intervention and even transplant have to be considered as treatments.





No.: 124

A 23-year-old woman is admitted with jaundice and mild abdominal distension. She was entirely well until 5 days ago. She now feels unwell and nauseated. She is unmarried, but lives with her boyfriend, with whom she had been for 4 years. They have no children. She has not been abroad recently, and her boyfriend is entirely well. Apart from the oral contraceptive pill, she is not on any medication. She has never been to hospital before. She smokes tobacco, but denies alcohol consumption. On examination, she is jaundiced, afebrile, with no stigmata of chronic liver disease. BP 110 / 70. Pulse 68, cardiovascular, respiratory and neurological examinations normal. On examination of her abdomen, she is tender in her epigastrium, there is a palpable liver edge and spleen tip. There is some shifting dullness to percussion.

Investigations :

FBC :

Hb 12.3

WCC 13.4

Platelets 121

MCV 89

U&amp;E :

Na<sup>+</sup> 140K<sup>+</sup> 4.4

Urea 4.2

Creatinine 88

LFT :

Bilirubin 166

Alk Phos 430

ALT 43

Albumin 39

Coag :

INR 1.1

Aptt 26s (control 25s)

Ascites :

Microscopy &amp; culture : no growth

Protein 10 g/l

Cytology no abnormal cells

Urine: protein +, Blood +, Culture negative

What treatment would you instigate immediately:

Options

- A. Spironolactone
- B. N-acetyl cysteine
- C. Intravenous heparin
- D. Interferon and ribavirin
- E. Abdominal paracentesis

No.: 124

C

Budd Chiari syndrome - hepatic vein thrombosis or obstruction. This presents as a portal hypertension or as acute shock. The pill and smoking are both risk factors. She has no evidence of an acute hepatitis (the ALT is too low) and there is no evidence of alcohol (normal albumin, INR and MCV). Surgical intervention and even transplant have to be considered, but in the mean time intravenous heparin is the best acute treatment.







No.: 125

A 55-year-old man is admitted with nausea, vomiting, jaundice and weakness lasting two days. He also complains of abdominal pain .

He works as a salesman for a large publishing company, and has recently returned from a conference in Thailand. He was well until six days after his return. He did not take any malaria prophylaxis while away. He was, however, vaccinated against cholera, typhoid and yellow fever, and received Hepatitis A immunoglobulin prior to travelling .

Two days prior to his admission, he attended the launch of a guidebook to the Far East, and admits to drinking heavily that evening. He took two paracetamol with a pint of water to try and prevent a hangover before retiring .

The next morning we felt unwell, and assuming that is was an effect of the previous evening's excesses, took 2 paracetamol tablets on waking. He woke again 3 hours later and took two more paracetamol in an effort to treat his symptoms. He has since taken 2 paracetamol every four hours .

He smokes 20-30 cigarettes a day, and consumes 4-5 whiskies per evening when at home, although admits that he may have drunk rather more whilst in Thailand .

On examination, he is unwell, afebrile and icteric. His blood pressure is 140/80, pulse 120 and irregularly irregular. He has some crackles in his chest and some right hypochondrial tenderness. Neurological examination is unremarkable .

## Investigations :

FBC :

Hb 13.5

WCC 12.4

Platelets 202

MCV 103

U&amp;E: Normal

Ferritin 794 LFT

Bilirubin 98

Alk Phos 230

ALT 78

GGT 101 Albumin 32

Globulin 22 Coag

INR 1.4

CXR: hyperinflated lung fields nil else

AXR: Normal

Choose which of the following most closely describes the cause of his clinical condition:

## Options

- A. Alcoholic liver disease complicated by acute viral hepatitis
- B. Alcoholic liver disease complicated by paracetamol toxicity
- C. Paracetamol toxicity with haemochromatosis
- D. Alcohol related liver disease complicated by malaria
- E. Malaria and paracetamol toxicity

No.: 125

B

This man has evidence of relatively long-standing liver disease (high MCV, low albumin, elevated Alk Phos, prolonged INR) with an acute insult (high GGT & ALT). It is unlikely to be an infective process (normal temperature & WCC), and the ALT is low for a viral hepatitis. A ferritin elevated goes along with alcoholic liver disease rather than haemochromatosis in this man, and the AF is probably an alcoholic cardiomyopathy rather than an iron effect .

Al antitrypsin deficiency springs to mind, but I didn't put that on the list! On balance, he is a man with a chronic alcohol problem who took several grams of paracetamol, and this is probably what has caused his condition .

Let the arguments begin (they always do with this question, which appeared in a form much like this in October 1996).



No.: 126

A 22-year-old woman presents with intermittent mild abdominal pain, bloating and weight loss over the last 2 years. She has had two episodes of diarrhoea, each lasting about one week but has never had pr blood loss. Both episodes were related to increasing abdominal pain, but resolved spontaneously. She reports that her weight has fluctuated over the last 10 years, but has dropped by about 10 kg in the last year. She eats well, but avoids fruit and green vegetables as they make her feel bloated. Apart from one admission to hospital for asthma, she has otherwise been well. She is married with two children and works in a travel agency. She smokes 10 cigarettes a day and does not drink alcohol.

On examination :

Height 1.65m

Weight 44kg .

Cardiovascular, respiratory and neurological examinations are normal .

On examination of her abdomen she has an appendectomy scar, but there are no masses or organomegaly. Bowel sounds normal. Rectal and sigmoidoscopy examinations are normal .

Investigations :

Hb 9.1

WCC 4.1

Platelets 110

MCV 72 fl

Blood film : macrocytosis & Howell Jolly bodies noted

Na+ 132

K+ 4.2

Urea 2.3

Creatinine 66

Ca2+ 2.87

Alk Phos 201

ALT 31

Albumin 32

Amylase 110

B12 180 (160-900)

Folate 5 (3-20)

Ferritin 2 (4-120)

What is her body mass index :

Options

A. <15

B. 15 - 18

C. 19 - 23

D. 23 - 27

E. >27

No.: 126

B

The BMI falls into the 15-18 range. The most likely cause is Coeliac disease, especially with the hyposplenism (Howell Jolly bodies) and folate deficiency with lowish iron and normal B12. Crohns is a possibility as well. The low albumin could be due to either. Vitamin D malabsorption results in secondary then tertiary hyperparathyroidism (initially appropriate hyperplasia then adenoma formation)



No.: 127

A 22-year-old woman presents with intermittent mild abdominal pain, bloating and weight loss over the last 2 years. She has had two episodes of diarrhoea, each lasting about one week but has never had pr blood loss. Both episodes were related to increasing abdominal pain, but resolved spontaneously. She reports that her weight has fluctuated over the last 10 years, but has dropped by about 10 kg in the last year. She eats well, but avoids fruit and green vegetables as they make her feel bloated. Apart from one admission to hospital for asthma, she has otherwise been well. She is married with two children and works in a travel agency. She smokes 10 cigarettes a day and does not drink alcohol. On examination: Height 1.65m Weight 44kg Cardiovascular, respiratory and neurological examinations are normal. On examination of her abdomen she has an appendectomy scar, but there are no masses or organomegaly. Bowel sounds normal. Rectal and sigmoidoscopy examinations are normal. Investigations: Hb 9.1 WCC 4.1 Platelets 110 MCV 72 fBlood film : macrocytosis & Howell Jolly bodies noted Na<sup>+</sup> 132 K<sup>+</sup> 4.2 Urea 2.3 Creatinine 66 Ca<sup>2+</sup> 2.87 Alk Phos 201 ALT 31 Albumin 32 Amylase 110 B12 180 (160-900) Folate 5 (3-20) Ferritin 2 (4-120) What further investigation would you arrange to confirm the diagnosis:

Options

- A. C reactive protein
- B. Barium meal and follow through
- C. Duodenal biopsy
- D. DEXA bone scan
- E. Stool microscopy and culture

No.: 127

C She has hyposplenism (Howell Jolly bodies), folate and ferritin deficiency with normal B12. There is a history of weight loss and intermittent mild abdominal pain. In view of this history the most likely diagnosis is going to be coeliac disease. The rash of dermatitis herpetiformis may be present also in these patients. Crohn's is a less likely possibility in this case. The low albumin could be due to either. Vitamin D malabsorption results in secondary then tertiary hyperparathyroidism (initially appropriate hyperplasia then adenoma formation. The most appropriate investigation is a distal duodenal biopsy which would be expected to show villous atrophy and confirm the diagnosis of coeliac disease.



No.: 128

A 22-year-old woman presents with intermittent mild abdominal pain, bloating and weight loss over the last 2 years. She has had two episodes of diarrhoea, each lasting about one week but has never had pr blood loss. Both episodes were related to increasing abdominal pain, but resolved spontaneously. She reports that her weight has fluctuated over the last 10 years, but has dropped by about 10 kg in the last year. She eats well, but avoids fruit and green vegetables as they make her feel bloated. Apart from one admission to hospital for asthma, she has otherwise been well. She is married with two children and works in a travel agency. She smokes 10 cigarettes a day and does not drink alcohol. On examination: Height 1.65m Weight 44kg Cardiovascular, respiratory and neurological examinations are normal. On examination of her abdomen she has an appendicectomy scar, but there are no masses or organomegaly. Bowel sounds normal. Rectal and sigmoidoscopy examinations are normal. Investigations: Hb 9.1 WCC 4.1 Platelets 110 MCV 72 fl Blood film : macrocytosis & Howell Jolly bodies noted Na<sup>+</sup> 132 K<sup>+</sup> 4.2 Urea 2.3 Creatinine 66 Ca<sup>2+</sup> 2.87 Alk Phos 201 ALT 31 Albumin 32 Amylase 110 B12 180 (160-900) Folate 5 (3-20) Ferritin 2 (4-120) .

What management step would you take:

Options

- A. Oral prednisolone
- B. Oral ciprofloxacin and metronidazole
- C. Gluten free diet
- D. Aledronate
- E. Oral vitamin D therapy

No.: 128

C

This is most likely to be Coeliac disease, especially with the hyposplenism (Howell Jolly bodies) and folate deficiency with lowish iron and normal B12. Crohn's is a possibility as well. The low albumin could be due to either. Vitamin D malabsorption results in secondary then tertiary hyperparathyroidism (initially appropriate hyperplasia then adenoma formation). The next step is to prove the diagnosis, a distal duodenal biopsy would be expected to show evidence of villous atrophy. After proving the diagnosis, a period of gluten free diet would be expected to lead to improved appearance of the duodenum on re-biopsy and a resolution of symptoms.





No.: 129

A 35-year-old man presents with a 3-month history of diarrhoea up to 8 times a day, with blood and mucus in the stool. He has lost about 1 stone in weight since the onset of his symptoms, and feels unwell. No one else in his family has had diarrhoea. He is a nonsmoker who does not drink alcohol. He is married with 3 children. He works as a solicitor. He has not had any previous admissions or serious illnesses .

On examination :

Cardiovascular and respiratory systems are normal .

His abdomen is soft, tender on the left side, with no organomegaly or palpable masses .

He has an empty rectum on digital examination .

There are several raised dusky red areas around his ankles with surrounding bruising .

Rigid sigmoidoscopy demonstrates inflamed mucosa to 14 cm, with a granular appearance and small aphthous ulcers .

A biopsy is taken .

Investigations :

Hb 11.4

WCC 12.4

platelets 545

MCV 96

Na+ 147

K+ 4.4

urea 6.8

Creatinine 100

CRP 54 (normal < 8)

Biopsy: Acute inflammatory infiltrate to the lamina propria, with crypt distortion and crypt abscesses. No granulomata seen .

Suggest a likely diagnosis of:

Options

A. Crohn's disease

B. Amoebiasis

C. Cryptosporidiosis

D. Ulcerative colitis

E. Pseudomembranous colitis

No.: 129

A plain abdominal film is vital in anyone with bloody diarrhoea and systemic illness to rule out a toxic megacolon. The biopsy will give you the diagnosis. The extent of the disease is shown at barium enema or colonoscopy. However, the plain film should give you some idea. In the absence of a megacolon, oral mesalazine and steroids are the best starting point. The raised red areas around the ankles are most likely erythema nodosum. Sclerosing cholangitis is associated with ulcerative colitis in 70% of cases. The majority are men. There is an increased risk of cholangiocarcinoma.





No.: 130

A 35-year-old man presents with a 3-month history of diarrhoea up to 8 times a day, with blood and mucus in the stool. He has lost about 1 stone in weight since the onset of his symptoms, and feels unwell. No one else in his family has had diarrhoea. He is a non-smoker who does not drink alcohol. He is married with 3 children. He works as a solicitor. He has not had any previous admissions or serious illnesses. On examination: Cardiovascular and respiratory systems are normal. His abdomen is soft, tender on the left side, with no organomegaly or palpable masses. He has an empty rectum on digital examination. There are several raised dusky red areas around his ankles with surrounding bruising. Rigid sigmoidoscopy demonstrates inflamed mucosa to 14 cm, with a granular appearance and small aphthous ulcers. A biopsy is taken .

## Investigations :

Hb 11.4

WCC 12.4

platelets 545

MCV 96

Na+ 147

K+ 4.4

urea 6.8

Creatinine 100

CRP 54 (normal &lt; 8)

Biopsy: Acute inflammatory infiltrate to the lamina propria, with crypt distortion and crypt abscesses. No granulomata seen. What is the cause of the rash:

## Options

A. Erythema multiforme

B. Erythema nodosum

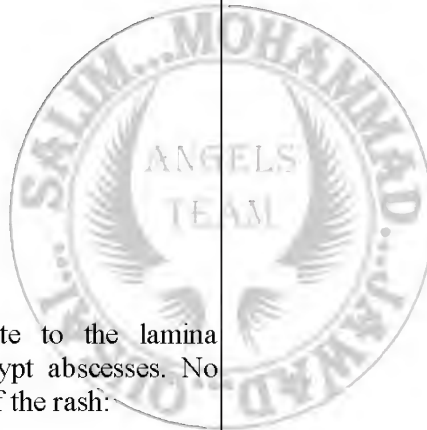
C. Pyoderma gangrenosum

D. Dermatitis herpetiformis

E. Erythema ab igne

No.: 130

The histological appearance and location of this gentleman's bowel inflammation makes ulcerative colitis the most likely cause, this is of course associated with erythema nodosum. Other causes of erythema nodosum include streptococcal, tuberculosis, yersinia or fungal infection, leprosy, chlamydia, drugs (oral contraceptives, sulphonamides and NSAIDs), sarcoidosis and idiopathic. Pyoderma gangrenosum presents with ulcerating lesions, erythema multiforme presents with an annular rash affecting the hands and feet, and dermatitis herpetiformis is associated with coeliac disease.





No.: 131

A 35-year-old man presents with a 3-month history of diarrhoea up to 8 times a day, with blood and mucus in the stool. He has lost about 1 stone in weight since the onset of his symptoms, and feels unwell. No one else in his family has had diarrhoea. He is a non-smoker who does not drink alcohol. He is married with 3 children. He works as a solicitor. He has not had any previous admissions or serious illnesses. On examination: Cardiovascular and respiratory systems are normal. His abdomen is soft, tender on the left side, with no organomegaly or palpable masses. He has an empty rectum on digital examination. There are several raised dusky red areas around his ankles with surrounding bruising. Rigid sigmoidoscopy demonstrates inflamed mucosa to 14 cm, with a granular appearance and small aphthous ulcers. A biopsy is taken.

## Investigations :

Hb 11.4  
WCC 12.4  
platelets 545  
MCV 96  
Na<sup>+</sup> 147  
K<sup>+</sup> 4.4  
urea 6.8  
Creatinine 100  
CRP 54 (normal < 8)

Biopsy: Acute inflammatory infiltrate to the lamina propria, with crypt distortion and crypt abscesses. No granulomata seen. Six months later the patient is seen in the out-patient clinic with itching and jaundice. He has noted this over the last 3 weeks. He is unable to sleep. On questioning he states that his urine is darker than normal. On Examination he is jaundiced and there are excoriation marks seen. Otherwise there is little else to find.

## Investigations :

Bili 98  
Alk Phos 676  
ALT 111  
Albumin 37

Suggest a cause for his new symptoms:

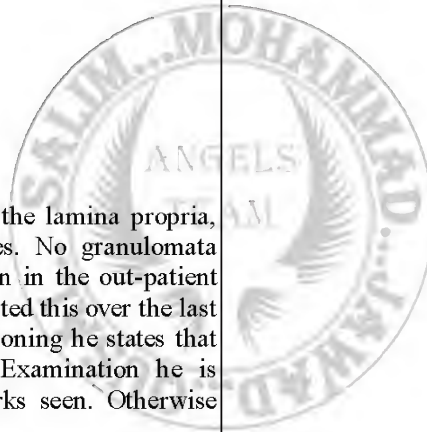
## Options

- A. Primary cholangiocarcinoma
- B. Liver metastasis from a colonic primary
- C. Sclerosing cholangitis
- D. Primary biliary cirrhosis
- E. Drug induced hepatitis

No.: 131

C

In view of the location of the bowel inflammation and the biopsy results the most likely diagnosis is ulcerative colitis (UC) as the cause of the diarrhoea. Sclerosing cholangitis is associated with UC in 70% of cases. The majority are men. Diagnosis is by endoscopic retrograde cholangiopancreatography (ERCP) or percutaneous transhepatic cholangiography (PTC) showing beaded dilated bile ducts. The ANA and ANCA is often positive. The condition is progressive leading eventually to cirrhosis, trials of ursodeoxycholic acid have so far proved equivocal and the only definitive treatment is liver transplantation. There is an increased risk of cholangiocarcinoma (up to 20% of patients).





No.: 132

A 35-year-old man presents with a 3-month history of diarrhoea up to 8 times a day, with blood and mucus in the stool. He has lost about 1 stone in weight since the onset of his symptoms, and feels unwell. No one else in his family has had diarrhoea. He is a non-smoker who does not drink alcohol. He is married with 3 children. He works as a solicitor. He has not had any previous admissions or serious illnesses. On examination: Cardiovascular and respiratory systems are normal. His abdomen is soft, tender on the left side, with no organomegaly or palpable masses. He has an empty rectum on digital examination. There are several raised dusky red areas around his ankles with surrounding bruising. Rigid sigmoidoscopy demonstrates inflamed mucosa to 14 cm, with a granular appearance and small aphthous ulcers. A biopsy is taken.

## Investigations :

Hb 11.4  
WCC 12.4  
platelets 545  
MCV 96  
Na<sup>+</sup> 147  
K<sup>+</sup> 4.4  
urea 6.8  
Creatinine 100  
CRP 54 (normal < 8)

Biopsy: Acute inflammatory infiltrate to the lamina propria, with crypt distortion and crypt abscesses. No granulomata seen. Six months later the patient is seen in the out-patient clinic with itching and jaundice. He has noted this over the last 3 weeks. He is unable to sleep. On questioning he states that his urine is darker than normal. On Examination he is jaundiced and there are excoriation marks seen. Otherwise there is little else to find

## Investigations :

Bili 98  
Alk Phos 676  
ALT 111  
Albumin 37

Name investigation you would consider to find the cause:  
Options

- A. Endoscopic retrograde cholangiopancreatography (ERCP)
- B. Abdominal CT scan
- C. Ultrasound of the liver and biliary tree
- D. Anti nuclear antibodies
- E. Anti-mitochondrial antibodies

No.: 132

A

This gentleman gives a good history for inflammatory bowel disease. He has a sigmoidoscopic appearance consistent with this and a biopsy suggestive of ulcerative colitis (UC). Sclerosing cholangitis is associated with UC in 70% of cases, and this is almost certainly the cause of the abnormal liver function tests (LFTs). The majority of sufferers are men. Diagnosis is by endoscopic retrograde cholangiopancreatography (ERCP) or percutaneous transhepatic cholangiography (PTC) showing beaded dilated bile ducts. The ANA and ANCA is often positive but these blood tests would not be sufficient to make the diagnosis without liver imaging. There is an increased risk of cholangiocarcinoma.





No.: 133

A 35-year-old man presents with a 3-month history of diarrhoea, up to eight times a day, with blood and mucous in his stool. He has lost about 1 stone in weight since the onset of his symptoms, and he feels unwell. No one else in his family has had diarrhoea .

He is a non-smoker who does not drink alcohol. He is married with 3 children and works as a solicitor. He has not had any previous admissions or serious illnesses. On examination his cardiovascular and respiratory systems are normal. His abdomen is soft, tender on the left side, with no organomegaly or palpable masses. He has an empty rectum on digital examination .

There are several raised dusky red areas around his ankles with surrounding bruising. Rigid sigmoidoscopy demonstrates inflamed mucosa to 14 cm, with a granular appearance and small aphthous ulcers. A biopsy is taken .

Investigations :

Hb 11.4

WCC 12.4

platelets 545

MCV 96

Na+ 147

K+ 4.4

urea 6.8

Creatinine 100

CRP 54 (normal < 8)

Biopsy :

Acute inflammatory infiltrate to the lamina propria, with crypt distortion and crypt abscesses. No granulomata seen .

Six months later the patient is seen in the out-patient clinic with itching and jaundice. He has noted this over the last 3 weeks. He is unable to sleep. On questioning he states that his urine is darker than normal .

On examination the only apparent findings are jaundice and excoriation .

Investigations :

Bilirubin 98

Alk Phos 676

ALT 111

Albumin 37

Which one of the following investigations would you use:

Options

- A. Anti-mitochondrial antibodies
- B. Anti-neutrophil cytoplasmic antibodies (ANCA)
- C. Ultrasound guided liver biopsy
- D. CT of the liver and pancreas
- E. MRI cholangiography

No.: 133

E

It is vital to take a plain abdominal film in anyone with bloody diarrhoea and systemic illness to rule out a toxic megacolon .

The biopsy will give you the diagnosis. The extent of the disease is shown at barium enema or colonoscopy however the plain film should give you some idea. In the absence of a megacolon, oral mesalazine and steroids are the best starting point .

Sclerosing cholangitis is associated with ulcerative colitis in 70% of cases. The majority are men. Diagnosis is by ERCP or PTC showing beaded dilated bile ducts. The ANA and ANCA is often positive. There is an increased risk of cholangiocarcinoma .

MRCP has comparable sensitivity and specificity to ERCP in diagnosis, as it is non invasive, it can be considered as a first line test depending on availability



No.: 134

A 44-year-old man is referred to a dermatologist for advice on a grey skin colouration that has been increasing over the last 4 months. Unfortunately, the patient's notes are unavailable, as he was recently seen in the psychotherapy department for treatment of his impotence .

He is otherwise reasonably well, although concerned about the fact that his GP has recently started him on gliclazide for diabetes mellitus based on an elevated urinary glucose. He is married, and runs a decorating business. He has two adult sons. He gave up smoking 2 years ago, and drinks 5 pints of lager a week. In the past he has been admitted with a fractured femur after an accident .

On examination, his skin is tanned after a recent holiday to Majorca, with a mild grey colouration of the skin. His blood pressure is 110/70 and pulse 70 regular. Heart sounds are normal and cardiovascular & respiratory examinations are normal. It is noted that the patient has a palpable liver edge .

Investigations :

Hb 14.5  
WCC 9.4  
plats 137  
U&E Normal  
Bili 22  
ALT 102  
Alk Phos 454

Choose which of the following investigations is the most appropriate in order to confirm the diagnosis :.

Options

- A. Serum copper
- B. Liver biopsy
- C. Urinary copper
- D. Caeruloplasmin
- E. Total Iron binding capacity

No.: 134

B

Haemochromatosis is an inherited disease characterised by excess iron deposition in various organs leading to eventual fibrosis and functional organ failure .

Most people are affected in their fifth decade. The classical triad is of bronze skin pigmentation, hepatomegaly and diabetes mellitus. Hypogonadism is secondary to pituitary dysfunction and is the most common endocrine feature .

The serum iron is raised dramatically. Classically the ferritin is > 1000 but this is not always the case. Liver biopsy is the investigation of choice .

Hemochromatosis diagnosis is based on a variety of tests. The current practice recommended by CDC is as follows .

suspect hemochromatosis -> do transferrin saturation -> if raised (>60%), proceed to ferritin levels -> if >300, do a confirmatory test .

confirmatory tests :

- (1)direct confirmation - liver biopsy
- (2)indirect confirmation - phlebotomy - if it requires 15 phlebotomies of 500 ml each (200 mg iron each time = 3 g of iron in total) to stimulate erythropoiesis, then it indicates haemochromatosis
- (3)HFE testing (genetic testing for the haemochromatosis gene)

Liver biopsy is the best way to look at the pathology directly. All the more important if patient has abnormal LFTs and a ferritin >1000 .

phlebotomy is adequate if LFTs are normal, you can avoid unnecessary liver biopsy.



<p>No.: 135</p> <p>A female patient with anaemia is referred for investigation .  FBC: Hb 10.1  WCC 7 x109  Platelets 190  Blood film: Macrocytosis and hypersegmented neutrophils  Schilling Test: Pre intrinsic factor 3% B12 isotope excreted in urine. Post intrinsic factor 78% B12 isotope excreted .</p> <p>What treatment would you commence:</p> <p>Options</p> <p>A. High dose oral vitamin B12 supplements  B. 3 monthly intramuscular B12 injections  C. Oral prednisolone  D. Combined I.M. B12 and oral folate replacement  E. Oral Intrinsic factor</p>	<p>No.: 135</p> <p><b>D</b></p> <p>The Schilling test indicates abnormal B12 absorption (&lt;10% of ingested dose) corrected by intrinsic factor. Intrinsic factor is a glycoprotein secreted by gastric parietal cells along with hydrogen ions. It combines with B12 and together binds onto specific receptors on the surface of the ileum. This permits B12 to enter the ileal cells whereas the intrinsic factor remains in the lumen. This is strongly suggestive of a failure of intrinsic factor synthesis (either due to gastrectomy or pernicious anaemia). High dose oral B12 is therefore of little use. I.M. B12 and oral folate is the correct therapy (once B12 is replaced, the massive activation of erythropoiesis can lead to folate deficiency).</p>
<p>No.: 136</p> <p>A 23-year-old man gives a history of dysarthria, clumsiness, unsteadiness on his feet and irritability .</p> <p>Bilirubin 44 mmol/L :  ALT 65 U/L  Alk. Phos 450 U/L  Albumin 34 g/L</p> <p>What is the most likely cause:</p> <p>Options</p> <p>A. Haemochromatosis  B. Wilson's disease  C. Alcoholic hepatitis  D. Cocaine use  E. Phenytoin toxicity</p>	<p>No.: 136</p> <p><b>B</b></p> <p>Wilson's has several manifestations - look out for the association with RTA type II, characterised by proximal loss of bicarbonate and glucose. Kayser-Fleischer rings occur due to copper deposition within Descemet's membrane. Certainly a young man with basal ganglia like signs and abnormal liver function may well have Wilson's. It is autosomal recessively inherited, and results in low or normal serum copper and high urinary copper, with low caeruloplasmin. In elderly patients it can present as a dementia or as chronic liver disease.</p>





<p>No.: 137</p> <p>A 23-year-old man gives a history of dysarthria, clumsiness, unsteadiness on his feet and irritability. He is tetotal and has no history of drug abuse .</p> <p>Bilirubin 44 mmol/L ALT 65 U/L Alk. Phos 450 U/L Albumin 34 g/L</p> <p>Name 1 investigation to confirm your suspicions:</p> <p>Options</p> <p>A. Serum and urinary copper and caeruloplasmin B. Liver ultrasound C. Ferritin D. Urinary toxicology screen E. CT scan of the head</p>	<p>No.: 137</p> <p>A</p> <p>Wilson's is a RCP examiners favourite. It has several manifestations - this is one possible presentation of Wilson's disease. In a young man with basal ganglia like signs and abnormal liver function but with no history of drug abuse Wilson's may be the underlying cause. Serum copper and caeruloplasmin are usually reduced and urinary copper is increased. The defect that causes Wilson's is associated with a mutation on chromosome 13 encoding for a gene that is responsible for a copper transporting ATPase. In elderly patients it can present as a dementia or as chronic liver disease.</p>
<p>No.: 138</p> <p>A 23-year-old man gives a history of dysarthria, clumsiness, unsteadiness on his feet and irritability.</p> <p>The patient has the following blood test results : Bilirubin 44 mmol/L ALT 65 U/L Alk. Phos 450 U/L Albumin 34 g/L</p> <p>What therapy would you commence:</p> <p>Options</p> <p>A. Penicillamine B. Desferrioximine C. Venesection D. Genetic analysis E. N acetyl cysteine</p>	<p>No.: 138</p> <p>A</p> <p>Wilson's disease is a RCP examiner's favourite topic. It has several manifestations - look out for the association with RTA type II, proximal loss of bicarbonate and glucose .</p> <p>Kayser-Fleischer rings turn up in the slides from time to time. Certainly a young man with basal ganglia like signs and abnormal liver function is likely to have Wilson's disease (although in real life consider cocaine abuse). It is AR inherited, and results in high serum and urinary copper, and low caeruloplasmin in blood .</p> <p>In elderly patients it can present as a dementia or as chronic liver disease.</p>





No.: 139

A 64-year-old man presents with weight loss and malaise. He has always been well up to now except for constipation. Now he complains of abdominal pain and alternating periods of constipation and diarrhoea .

The following results are obtained :

Hb 98g/L

Plt  $128 \times 10^9/L$

MCV 105fl

ESR 23mm/hrA

Schilling test :

-24hr urinary excretion of radioactive B12:2%

With intrinsic factor:4% .

Which of the following options would be the next investigation of choice:

Options

A. Barium enema

B. CT abdomen

C. C radiocarbon breath test

D. Gastrosocopy and urease test

E. Ultrasound of the abdomen

No.: 139

A

The patient is most likely suffering from diverticular disease as he has the symptoms as well as an abnormal Schilling's test. This indicates bacterial overgrowth causing vitamin B12 deficiency .

A history of weight loss should have been borne in mind whilst choosing one of the above options. Hence a barium enema would be the diagnostic investigation of choice, as it would help to rule out carcinoma as well.

No.: 140

A 45-year-old man is referred with jaundice. His liver function tests reveal :

Bilirubin 74

ALT 23

AST 30

Alkaline phosphatase 92

Gamma GT 32

Prothrombin time 12 seconds

Albumin 41 g/L

What is the most likely diagnosis:

Options

A. Crigler Najjar type I

B. Alcohol abuse

C. Hepatitis A

D. Gilbert's syndrome

E. Wilson's disease

No.: 140

D

The diagnosis of Gilbert's is based on a bilirubin of  $<102$  mmol/L and otherwise normal liver function. Patients with Crigler-Najjar type I do not survive to adulthood, whereas those with type II do. Both syndromes are due to defects in the glucuronosyl transferase enzyme complex, responsible for the conjugation of bilirubin. Gilbert's affects 2-7% of the population and there is a family history of jaundice in 5-15% of patients. Bilirubin rises on fasting and mild illness.

No.: 141



What diagnosis is suggested by the image below :

Options

- A. Hepatitis C
- B. Metastatic adenocarcinoma of the bowel
- C. Flucloxacillin induced hepatitis
- D. Chronic pancreatitis
- E. Hypothyroidism

No.: 141

A

He is clubbed. Liver cirrhosis due to hep C is the only one of this list that will cause this.

No.: 142



This 67-year-old woman was referred due to gastrointestinal bleeding. What is her diagnosis:

Options

- A. Osteoarthritis
- B. Psoriatic arthritis
- C. Rheumatoid arthritis
- D. Paget's disease
- E. Arthritis mutilans

No.: 142

C

She has Z thumbs, boutonniere deformity and metacarpal subluxation with ulnar deviation. Possible causes of the gastrointestinal bleed would include use of non-steroidal anti-inflammatory drugs or corticosteroids.



<p>No.: 1</p> <p>A 64-year-old, obese, type 2 diabetic man complains of pain of 6 weeks duration over the left upper leg. On examination there is wasting of the quadriceps on the left, and the muscle is tender to palpation. There is no sensory loss. The knee jerk is absent .</p> <p>Which of the following is the most appropriate diagnosis?</p> <p>Options</p> <p>A. Cerebrovascular accident B. Compression of the lateral cutaneous nerve of the thigh due to his obesity C. Mononeuritis multiplex D. Amyotrophy E. Fibromyalgia</p>	<p>No.: 1</p> <p><b>D</b></p> <p>*Hypertension may be due to elevated renin levels causing increased aldosterone, as in renal artery stenosis, renin-secreting tumours and sodium-losing nephritis .</p> <p>*In phaeochromocytoma, there is usually intravascular volume depletion with elevated (or normal) renin and aldosterone levels .</p> <p>*Hypertension with low aldosterone suggests excess of some other mineralocorticoid, for example : -C-11-OH deficiency ‘ -Liddle’s syndrome (an abnormal sodium channel in the kidney) ‘ -deoxycortisol-secreting tumour ‘ -Cushing’s syndrome ‘ -ectopic ACTH production or - liquorice/carbenoxolone.</p>
<p>No.: 2</p> <p>A 64-year-old, obese, type 2 diabetic man complains of pain of 6 weeks duration over the left upper leg. On examination there is wasting of the quadriceps on the left, and the muscle is tender to palpation. There is no sensory loss. The knee jerk is absent .</p> <p>Which of the following is the most appropriate diagnosis?</p> <p>Options</p> <p>A. Cerebrovascular accident B. Compression of the lateral cutaneous nerve of the thigh due to his obesity C. Mononeuritis multiplex D. Amyotrophy E. Fibromyalgia</p>	<p>No.: 2</p> <p><b>D</b></p> <p>Diabetic amyotrophy is usually seen in older men with diabetes. It is a painful wasting process that affects the quadriceps muscles and is usually asymmetrical. Wasting can be very marked and knee reflexes are diminished or absent. The affected area is usually tender. Extensor plantars can develop and CSF protein is elevated. The pathogenesis is not fully understood but it generally occurs in the setting of poor glycaemic control and may reverse once the blood glucose is better managed.</p>



<p>No.: 3</p> <p>A 28-year-old businesswoman presents with a painless enlarging lump in the right side of her neck. The lump is soft, non-tender, just to the right of midline in the lower third of the neck and moves with swallowing. Thyroid function tests: free T4 44 pmol/L, TSH &lt;0.05 .</p> <p>Which of the following is the most likely diagnosis?</p> <p>Options</p> <p>A. Hashimoto's thyroiditis B. Thyroglossal cyst C. Multinodular goitre D. Graves disease E. Papillary carcinoma of the thyroid</p>	<p>No.: 3</p> <p>C</p> <p>Although clinical examination reveals a single lump, the commonest cause for this picture is a single prominent nodule within a multinodular goitre. The development of an autonomous hyperfunctioning nodule would explain the increase in free T4, and thus suppress TSH levels. Also, the increased thyroid function means this is unlikely to be a thyroid carcinoma. Solitary toxic nodules (Plummer's syndrome) are quite uncommon and may be associated with T3 production.</p>
<p>No.: 4</p> <p>A 60-year-old female was prescribed thyroxine 150 µg daily for hypothyroidism. She was clinically hypothyroid and no goitre was present .</p> <p>Investigations revealed :</p> <p>Serum total T4 68 nmol/L (55-145) Serum total T3 0.5 nmol/L (0.9-2.5) Serum TSH 70 mU/L (0.5-4)</p> <p>Which of the following would be the next step in her management?</p> <p>Options</p> <p>A. Investigation for TSH-secreting pituitary tumour B. Measurement of free thyroxine concentration C. Questioning of the patient about compliance D. She has sick euthyroid syndrome, no further investigation required E. Thyroid ultrasound scan</p>	<p>No.: 4</p> <p>C</p> <p>Total thyroid hormone levels are rarely measured these days, most people measure free T4. This patient has a raised TSH but normal total thyroid hormone concentrations. The explanation is non-compliance.</p>





<p>No.: 5</p> <p>A 56-year-old female secretary presented to her GP with nausea, lethargy and weight loss .</p> <p>Blood tests revealed :</p> <p>Na 130</p> <p>K 5.9</p> <p>Urea 13</p> <p>Which of the following is the least likely to be associated with the underlying diagnosis of this patient?</p> <p>Options</p> <p>A. Basophilia</p> <p>B. Metabolic acidosis</p> <p>C. Hypercalcaemia</p> <p>D. Peaked T waves on the ECG</p> <p>E. Hyperpigmentation</p>	<p>No.: 5</p> <p>A</p> <p>Addison's disease needs ruling out here. Addison's is usually associated with a peripheral blood eosinophilia. Nausea, lethargy, pigmentation and weight loss are common presenting features.</p>
<p>No.: 6</p> <p>These are blood results of a 12-year-old girl with short stature after the combined administration of LH-RH and 0.15 U insulin/kg. At time 0, glucose was 4.4 mmol/L, 2.6 at time 30 and 2.4 at time 60. GH was 4 mU/L at time 0, 12 at time 30, and 18 at time 60. LH was 2 mU/L at time 0, 28 at time 30 and 18 at time 60. FSH was 4 mU/L at time 0, 26 at time 30 and 24 at time 60 .</p> <p>How do you interpret the gonadotrophin response?</p> <p>Options</p> <p>A. Normal pre-pubertal levels</p> <p>B. Constitutional delay</p> <p>C. Primary ovarian failure</p> <p>D. Pituitary failure</p> <p>E. Hypothalamic failure</p>	<p>No.: 6</p> <p>A</p> <p>Gonadotrophin levels are at normal pre-pubertal levels at time 0. The pituitary response to GnRH is entirely appropriate, suggesting a normal FSH/LH axis and that this element of pituitary function is normal. Primary ovarian failure would be a consideration if FSH/LH levels were elevated pre-test. Glucose does not fall to lower than 2.2 during the test, so that the growth hormone response is difficult to interpret.</p>



<p>No.: 7</p> <p>These are blood results of a 12-year-old girl with short stature after the combined administration of LH-RH and 0.15U insulin/kg. Glucose at times [min] 0, 30, 60, 90, 120 was 4.4, 2.6, 2.4, 3.1, 3.4 mmol/l, growth hormone was 4(&lt;10), 12, 18(&gt;20), 10, 9 mU/l, LH was 2(2-4), 28, 18 mU/l at 0, 30, 60 minutes, and FSH was 4(3-8), 26, 22 mU/l at 0, 30, 60 minutes .</p> <p>What would you do next?</p> <p>Options</p> <p>A. A MR-scan of pituitary B. Thyroid function tests C. Repeat test with double dose insulin D. 08.00 am cortisol levels E. Ultrasound of pelvis</p>	<p>No.: 7</p> <p><b>C</b></p> <p>The LH/FSH one is a normal pre-pubertal response. For growth hormone, the response is nearly normal with the rise to 18 at 60 minutes, but this is associated with glucose of 2.4. By definition the test is only valid when the glucose falls below 2.2, for this reason it is necessary to repeat the test with the increased dose of insulin. For obvious reasons, insulin testing has to be carried out under controlled conditions, with resuscitation equipment, IV access at all times and readily available intravenous glucose solution.</p>
<p>No.: 8</p> <p>-34year-old nurse complains of polyuria. These are the results of his water deprivation test. Serum osmolality was 274 mosmo/kg at the beginning of the test and urine osmolality was 270 mosmo/kg. After 8 hours' fluid deprivation serum osmolality was 282 mosmo/kg and urine osmolality was 278 mosmo/kg. What diagnosis is suggested by these results?</p> <p>Options</p> <p>A. Syndrome of inappropriate ADH-secretion B. Peripheral diabetes insipidus C. Central diabetes insipidus D. Psychogenic polydipsia E. Lithium therapy</p>	<p>No.: 8</p> <p><b>D</b></p> <p>Serum osmolality was in the normal range at the beginning of the test and at the upper limit of normal towards the end of the test. Urine osmolalities were low both pre and post test. This suggests psychogenic polydipsia and raises the possibility of some cheating during the test itself. Lithium therapy is a cause of peripheral (nephrogenic) diabetes insipidus. In syndrome of inappropriate ADH secretion you would expect a raised urinary osmolality.</p>



No.: 9

A 64-year-old man retired chemical worker is being investigated for bilateral loin pain and macroscopic haematuria which he has had on and off for several months. After three particularly bad episodes he thought he had passed a small blood clots. He has a two-year history of moderate prostatism. He is adiabetic well controlled on oral hypoglycaemics; his only other medication is aspirin for TIA's and oxybutinine. He has been well with a good appetite and a steady weight until recently when he was beginning to feel short of breath climbing the stairs to his first floor flat .

On examination he is in slow atrial fibrillation. Initial investigations revealed :

Na 145 mmol/l

Hb 122 g/l

K 4.2 mmol/l

WCC 7.2

Urea 14.2 mmol/l

Plat 235

Creat. 172 pmol/l

ESR 32 mm/hr

Bicarbon. 24 mmol/l

Glucose 12.1 mmol/l

An IVU was performed as an outpatient. It was reported as showing bilaterally clubbed renal calyces with ill-defined filling defects in both collecting systems. Two days later the patient is admitted confused and unwell to the accident and emergency department where the following results are obtained :

Na 142 mmol/l

Hb 129 g/l

K 5.0 mmol/l

WCC 8.3

Urea 17.2 mmol/l

Plat 371

Creat. 192/mol/l

ESR 39 mm/hr

Bicarbon. 19 mmol/l

Chloride 94 mmol/l

\*urine: glucose ++, ketones +, blood ++, protein .+

\*pulse oximeter: sat. O<sub>2</sub> 97 (on air) .

\*emergency drug screen negative .

The combination of which two factors is likely to have precipitated this :

Options

A. Aspirin and metformin

B. Metformin and radiographic contrast medium

C. Oxybutinine and hypoxia

D. Prostatism and urinary infection

E. Heparin and diabetes

No.: 9

B

This patient almost certainly presents with contrast nephropathy, which occurs with increased likelihood in patients who continue taking metformin therapy during the period of investigation. His oral hypoglycaemic therapy is almost certainly metformin. The blood tests show a metabolic acidosis with deteriorating renal function. Iodinated contrast media are thought to be nephrotoxic by causing renal vasoconstriction and a direct toxic effect on renal tubules. The effect is dose dependent; there is increased incidence in those with diabetic nephropathy, particularly if taking metformin, which should be stopped for at least 48 hours before the test. There is limited evidence that pre-loading with fluid or use of acetylcysteine may be preventative.



No.: 10

A 27-year-old white physiotherapist is referred for investigation of a blistering rash over of her arms and her forehead. It developed three weeks earlier while visiting her grandfather in South Africa. It had been her first trip abroad; she had taken all required vaccinations and medication. She is a total vegetarian, who was diagnosed as having irritable bowel syndrome twelve months ago by her GP. At some stage she had also been investigated for recurrent haematuria, but an outpatient ultrasound scan and IVU requested by her GP had been reported as normal several years ago. Her current medication includes iron capsules, fluoxetine, senna tablets and generic vitamins. She states that she is allergic to cephalexin .

The following blood results are obtained :

Na 128 mmol/l

Hb 109 g/l

K 4.2 mmol/l

MCV 73 fl

Urea 9.5 mmol/l

WCC 11.8 (64% neutrophils)

Creat. 68 mmol/l

Plat 288

Bilirubin 48

ESR 8 mm/hr

AST 67 IU/l

ALT 88 IU/l

Urinary porphobilinogen Not raised

Suggest a diagnostic investigation :

Options

A. Small bowel biopsy

B. Liver biopsy

C. Uric acid levels

D. Skin biopsy

E. Faecal porphyrin estimation

No.: 10

E

The diagnosis is variegate porphyria, give-aways to the diagnosis being the hyponatraemia, intermittent abdominal pain, mood disturbance and photosensitive rash. Her South-African ancestry is another big hint. Faecal porphyrin estimation can be used to confirm the diagnosis. The best management is cessation of anti-depressant therapy and sun avoidance, high carbohydrate diet is occasionally helpful.







No.: 11

A 27-year-old white physiotherapist is referred for investigation of a blistering rash over of her arms and her forehead. It developed three weeks earlier while visiting her grandfather in South Africa. It had been her first trip abroad; she had taken all required vaccinations and medication. She is a total vegetarian, who was diagnosed as having irritable bowel syndrome by her GP twelve months ago. At some stage she had also been investigated for recurrent haematuria, but an outpatient ultrasound scan and IVU requested by her GP had been reported as normal several years ago. Her current medication includes iron capsules, fluoxetine, senna tablets and generic vitamins. She states she is allergic to cephalixin .

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Urea 9.5 mmol/l

WCC 11.8 (64% neutrophils)

Creat. 68 mmol/l

Plat 288

Bilirubin 48

ESR 8 mm/hr

AST 67 IU/l

ALT 88 IU/l

Urinary porphobilinogen Not raised

What two measures would you advise?

Options

- A. Oral steroids and rehydration
- B. Gluten free diet and steroid cream
- C. Allopurinol and dietary advice
- D. Stop fluoxetine and sun avoidance
- E. Venaesection and aspirin

No.: 11

D

There is no specific treatment for porphyrias. The diagnosis here is variegate porphyria and the diagnosis is usually confirmed with fluorescence emission spectroscopy. A high carbohydrate diet is thought to reduce the frequency of acute attacks, and antidepressants should be avoided as these may actually increase the frequency of attacks. As the bullous eruption is made worse by sun exposure it should be avoided. Gluten free diet would be the treatment for coeliac disease and dermatitis herpetiformis, but this is not the diagnosis here. Venesection is the treatment for porphyria cutanea tarda, but in the absence of a history of alcohol abuse or hepatitis C, this is unlikely.





<p>No.: 12</p> <p>A 23-year-old diabetic man has noticed that his morning urine has 2 pluses of glucose and 2 pluses of ketones. He is also concerned, as he has been having nightmares about his diabetic control !</p> <p>Which of the following is the most likely blood glucose measurement in the middle of the night?</p> <p>Options</p> <p>A. 1.8 mmol/l B. 9.5 mmol/l C. 12.5 mmol/l D. 18.7 mmol/l E. 35 mmol/l</p>	<p>No.: 12</p> <p>A</p> <p>This is the Somogyi effect, nighttime hypoglycaemia is characterised by release of counter-regulatory hormones such as adrenalin, which results in morning glycosuria and urinary ketones. It is seen in patients on BD insulin most commonly, where they have difficulty regulating their insulin dosing in conjunction with meal times and lifestyle. The best way around it is to switch to three times a day short acting insulin with meals and a lower dose of insulin at night, or to consider a peak less insulin such as insulin glargine.</p>
<p>No.: 13</p> <p>A 23-year-old diabetic man has noticed that his morning urine has 2 pluses of glucose and 2 pluses of ketones. He is also concerned as he has been having nightmares about his diabetic control !</p> <p>Which of the following is the best management plan for this patient :</p> <p>Options</p> <p>A. Increase his night time long-acting insulin B. Increase his evening meal short acting insulin C. Decrease his night time long acting insulin D. Stop drinking alcohol at night E. Stop eating a snack late at night</p>	<p>No.: 13</p> <p>C</p> <p>He is having nocturnal hypoglycaemia, develops a marked sympathetic and adrenal response causing rebound hyperglycaemia and ketonaemia, which leads to his urine abnormalities in the morning.</p>
<p>No.: 14</p> <p>A 32-year-old female presents to the endocrinology clinic with a four-month history of amenorrhea. She is currently on no medication. As part of the workup which of the following is the initial investigation of choice :</p> <p>Options</p> <p>A. Beta-human chorionic gonadotrophin B. Serum thyroid-stimulating hormone C. BMI D. Serum prolactin E. Serum follicle-stimulating hormone</p>	<p>No.: 14</p> <p>A</p> <p>Most likely cause in this age group is pregnancy, hence beta-HDG (Human Chorionic Gonadotrophin) is the most appropriate test. If this was negative then a TSH(Thyroid Stimulating Hormone) and prolactin would be the next investigations of choice.</p>



<p>No.: 15</p> <p>A 40 year Type 1 diabetic builder presents for his routine review. Which of the following funduscopy findings warrants an urgent referral to the ophthalmologist :</p> <p>Options</p> <p>A. Peripheral microaneurysms B. Hard exudates C. Blot haemorrhages D. Hard exudates within 1 disk width of the macula E. Venous beading</p>	<p>No.: 15</p> <p>D</p> <p>Early referral to an ophthalmologist is vital for rapid change in visual acuity, hard exudates encroaching on the macula, pre-proliferative changes (cotton wool spots or venous bleeding) or new vessel changes.</p>
<p>No.: 16</p> <p>A 23-year-old unmarried woman is referred for psychiatric evaluation prior to surgery because of reportedly recurrent mood swings. She has already had three laparotomies for abdominal pain including the removal of her gall bladder. The impression is that she is using drugs especially as at times she appears to be almost confused which of the following tests would you recommend :</p> <p>Options</p> <p>A. Serum folate B. Urinary methemoglobin C. Serum phosphokinase D. Serum bilirubin E. Urinary porphobilinogen</p>	<p>No.: 16</p> <p>E</p> <p>The diagnosis to be excluded here is acute intermittent porphyria. This is characterised by raised gamma-aminolevulinic acid and porphobilinogen in the urine. Other porphyrias are associated with skin manifestations which are clearly not present in this woman.</p>
<p>No.: 17</p> <p>A 59-year-old patient is investigated for abnormal LFTs, serum alpha feto protein (AFP) is also noted to be high, which of the following is the least likely cause for this rise :</p> <p>Options</p> <p>A. Hepatoma B. Germ cell tumour C. Emphysema D. Carcinoma E. Fetus with Down's syndrome</p>	<p>No.: 17</p> <p>E</p> <p>Fetus with Down's syndrome is the least likely diagnosis due to the patient's advanced age. Hepatoma/hepatocellular carcinoma lead to a raised AFP in 70% of cases and so may explain the results. In emphysema there may be alpha 1 anti-trypsin deficiency with raised AFP. Germ cell tumours may cause raised AFP. Peak incidence of ovarian carcinoma is at the age of 75-79 years old, and median age at presentation is 61 years old.</p>






<p>No.: 18</p> <p>A 65-year-old patient with diabetes presents for their annual follow up and are found to have a blood pressure of 160/80, urine dipstick is positive for protein (albumin), which of the following are you going to do :</p> <p>Options</p> <p>A. Review at the next yearly follow-up B. Start an alpha blockers C. Start a calcium channel blocker D. Begin treatment with an ACE-inhibitor E. Start Nicorandil</p>	<p>No.: 18</p> <p><b>D</b></p> <p>Hypertension has been demonstrated to accelerate microangiopathy in diabetics, they are at an increased risk of developing nephropathy and retinopathy ♦ hence they require a tight blood pressure control .</p> <p>Alpha blockers block the hypoglycaemic response ♦ therefore should be used carefully, they also affect the lipid profile and are associated with impotence. Calcium channel blockers can be used as they do not have adverse effects which affect lipids, glucose control or autonomic interference but ACE inhibitors are the best choice as they have been shown to slow the progression of diabetic nephropathy. Nicorandil is an anti-anginal, that works as a potassium channel activator, it has been shown in the IONA trial to have effects on cardiac ischaemia but has not yet generated evidence for use in hypertension.</p>
<p>No.: 19</p> <p>A patient arrives in A&amp;E drowsy with a serum Na of 105 mmol/l. Serum osmolality is 246 mosmol/kg and urine osmolality is 644 mosmol/kg. Which of the following statements is true concerning diagnosis or management?</p> <p>Options</p> <p>A. The diagnosis of SIADH could not fit the data B. This scenario excludes hyperglycaemia and/or hyperlipidaemia C. Hypothyroidism should be ruled out D. Fluid restriction should be ruled out E. Lithium is contraindicated</p>	<p>No.: 19</p> <p><b>C</b></p> <p>Three conditions should be considered here are Addison ♦s disease, hypothyroidism, or SIADH. It is important to rule out both Addison ♦s and hypothyroidism if cortisol is normal or raised and free T4 is normal then SIADH is the most likely diagnosis. Treatments include fluid restriction and tetracycline like agents (which induce a mild diabetes insipidus). Hyperglycaemia and hyperlipidaemia are causes of pseudohyponatraemia.</p>





<p>No.: 20</p> <p>A 25-year-old female had radioiodine treatment for Graves disease a few days ago, which of the following is true?</p> <p>Options</p> <p>A. There is no concern if she now is discovered to be pregnant</p> <p>B. She will not need to re-start carbimazole</p> <p>C. Any eye signs will immediately start to improve</p> <p>D. One could start thyroxine when the T4 is well in the normal range</p> <p>E. She can be told the treatment will not need repeating</p>	<p>No.: 20</p> <p>D</p> <p>Radioiodine is contraindicated in pregnancy. Carbimazole is often restarted soon after radioactive iodine treatment, patients often either go on to a block-replace regime for a few months after radioiodine or begin thyroxine only, after T4 falls into the normal range. Eye signs may worsen (NEJM Bartanella et al., 1998 338:73-78), particularly if hypothyroidism is allowed to occur. Some patients need further radioiodine treatment and it is not correct to say that the treatment will never need repeating.</p>
<p>No.: 21</p> <p>A 40-year-old female patient said she was begun on pituitary hormones 10 years ago after an admission to hospital, but isn't sure which ones she was started on or what the underlying diagnosis was. Which of the following statements concerning her pituitary gland, possible pathology or assessment of the condition is true?</p> <p>Options</p> <p>A. The pituitary gland is resistant to ischaemia around times of pregnancy and delivery</p> <p>B. The patient probably had only psychological benefit from growth hormone replacement</p> <p>C. In acute panhypopituitarism it is important to replace thyroid hormones first</p> <p>D. If she has change in sleep, appetite and temperature regulation the most likely histology was pituitary adenoma</p> <p>E. She is likely to have better colour vision at the periphery of her vision than black and white</p>	<p>No.: 21</p> <p>E</p> <p>Sheehan's syndrome occurs around delivery and may occur during periods of hypotension due to acute blood loss, e.g. after caesarean section. Growth hormone replacement has widespread benefits including psychological ones. Steroids should be given before T3 or T4 in hypopituitarism. Changes in sleep, appetite and temperature regulation are more likely to occur with craniopharyngioma than with adenoma due to hypothalamic involvement. She may well have a visual field problem and colour tests to differentiate her visual fields may be more sensitive.</p>



<p>No.: 22</p> <p>A 56-year-old woman presents to her GP having been taking prednisolone for eight months at a daily dose generally exceeding 10 mg for polymyalgia rheumatica. She is concerned about the effect these steroids might have on her bone density .</p> <p>Options</p> <p>A. Exercise will be harmful to her bone mineralisation</p> <p>B. Her T-score may well be over 2 SD (standard deviations) below the mean</p> <p>C. Calcium supplements would not be useful</p> <p>D. A bone densitometry scan will indicate the cause of osteoporosis</p> <p>E. There is no evidence as yet for bisphosphonates in assisting this patient</p>	<p>No.: 22</p> <p><b>B</b></p> <p>The WHO define osteoporosis as a T-score of -2.5, -1 to -2.5 is osteopaenia, this threshold is supported by the Royal College of Physicians (RCP). There are also guidelines from the National Osteoporosis Society on steroid-induced changes. Exercise is beneficial. Calcium and vitamin D, and also bisphosphonates are common treatments. Bone densitometry only measures the extent of bone demineralisation, not the underlying cause. Patients reach peak bone mass at around 30 years of age, a gradual decline follows in men, but in women the deterioration is accelerated during the 10 years after the menopause.</p>
<p>No.: 23</p> <p>A 24-year-old woman presents reluctantly to the endocrine clinic as her mother thinks she is too thin. She feels well, but has had amenorrhoea for six months. She exercises for 2 hours each day as she feels she needs to lose weight. On examination she is medium height and weighs 45 kg. What is the correct statements of the following?</p> <p>Options</p> <p>A. Her cortisol will be reduced</p> <p>B. LH and FSH levels will be at least twice the normal limit</p> <p>C. Hypomagnesaemia and hypocalcaemia are possibly present</p> <p>D. Osteoporosis risk is unlikely to be different to that predicted for age</p> <p>E. Hyperthyroidism is the most likely diagnosis</p>	<p>No.: 23</p> <p><b>C</b></p> 



<p>No.: 24</p> <p>A 30-year-old man was found to have a BP of 200/130. Examination was unremarkable otherwise. Blood tests revealed: Na 145 mmol/L, and K 3.0 mmol/L off any medication. His plasma renin activity was low .</p> <p>If the aldosterone was high, what investigation would you seek?</p> <p>Options</p> <p>A. USS kidneys B. USS adrenals C. CT adrenals D. MIBG scan E. 24 hour urinary catecholamines</p>	<p>No.: 24</p> <p>C</p> <p>Investigations of hyperaldosteronism include CT adrenals, 131-I-iodocholesterol scintigraphy and adrenal vein sampling.</p>
<p>No.: 25</p> <p>A 40-year-old man with known acromegaly treated by transphenoidal hypophysectomy and DXT 10 years ago. Now he is on no medication, but feels tired most of the time. You note from your routine bloods that : Na 133 Hb 12 MCV 75</p> <p>What test would you perform to investigate the hyponatraemia?</p> <p>Options</p> <p>A. Urinary sodium B. Paired serum and plasma osmolalities C. Short synacthen test D. Insulin tolerance test</p>	<p>No.: 25</p> <p>D</p> <p>The concern here is that this patient is developing adrenal insufficiency due to failure of pituitary ACTH. A short synacthen test would evaluate adrenal ability to produce cortisol, which wouldn't test the pituitary's ability to release ACTH. The insulin tolerance test stimulates release of growth hormone and ACTH but there has to be adequate hypoglycaemia with glucose less than 2.2 so the test is done under very controlled conditions during the test, cortisol should rise by &gt;170 to &gt;550nm and growth hormone should rise to &gt;20mU/l. There are contraindications to the test: epilepsy, IHD, severe panhypopituitarism, 9am cortisol &lt;55nm.</p>



<p>No.: 26</p> <p>A 40-year-old man with known acromegaly treated by transphenoidal hypophysectomy and DXT 10 years ago. Now he is on no medication, but feels tired most of the time. You note from your routine bloods that :</p> <p>Na 133 Hb 12 MCV 75</p> <p>How would you confirm cure from acromegaly?</p> <p>Options</p> <p>A. CT brain B. IGF-1 C. Insulin tolerance test D. Oral glucose tolerance test</p>	<p>No.: 26</p> <p><b>D</b></p> <p>An oral glucose tolerance test with suppression of growth hormone to less than 5 at 2 hrs is the best way to assess cure. The absence of constitutional symptoms such as hypertension, obstructive sleep apnoea and type 2 diabetes are other pointers to successful therapy. CT Brain would merely show surgery, not cure, and insulin tolerance test (only valid where glucose is suppressed to less than 2.2 mmol/l) is used to assess production of ACTH and growth hormone where these are thought to be low. IGF-1 is raised in acromegaly but it is not as reliable a test of cure as the glucose tolerance test.</p>
<p>No.: 27</p> <p>A 28-year-old woman, previously well, was complaining of flu-like symptoms for 2 weeks. She was found to have a TSH &lt; 0.08 and fT4 50 (10-26); ESR 70mm/hr .</p> <p>What treatment would you start?</p> <p>Options</p> <p>A. Carbimazole B. Propylthiouracyl C. Prednisolone D. Potassium Iodide E. Beta-blocker</p>	<p>No.: 27</p> <p><b>E</b></p> <p>B-blocker only</p> <p>Causes of thyroiditis</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> With pain and tenderness</li> <li><input type="checkbox"/> Subacute granulomatous thyroiditis (de Quervain's thyroiditis)</li> <li><input type="checkbox"/> Without pain or tenderness</li> <li><input type="checkbox"/> Subacute lymphocytic thyroiditis</li> <li><input type="checkbox"/> Postpartum thyroiditis</li> <li><input type="checkbox"/> Drug-induced : <ul style="list-style-type: none"> <li><input type="checkbox"/> INF-alpha, interleukin 2, Li, amiodarone</li> <li><input type="checkbox"/> Chronic lymphocytic thyroiditis (Hashimoto's thyroiditis)</li> <li><input checked="" type="checkbox"/> Fibrous thyroiditis (Reidel's thyroiditis, invasive thyroiditis)</li> </ul> </li> </ul>





No.: 28

A 60-year-old woman was taken to casualty having collapsed unconscious. Temperature was 35, BP 80/69, pulse 60/min regular, Glu 1.2, Na 128, K 3.5 U 2.0, urgent T4 - 7 (10-26)

Options

- A. The patient should receive T3
- B. The patient requires i.v. saline as first line
- C. The patient needs a temporary pacing
- D. The patient has hypopituitarism
- E. The patient has primary hypothyroidism

No.: 28

D

#### Hypopituitarism (T)

The patient should receive (in this order) :

- a) 50% Dextrose
- b) Hydrocortisone intravenously
- c) Fluids, and only when eucortisolaemic would you replace thyroxine

#### Causes of Pituitary Failure

- ☐ Adenoma (functioning or non-functioning)
- ☐ Post-operative
- ☐ Post-radiotherapy
- ☐ Trauma
- ☐ Hypotension, bleeding (Sheehan's)
- ☐ Infection: meningitis, encephalitis, TB
- ☐ Craniopharyngioma (4-9% of all childhood intracranial tumours)

#### Rarer Causes of Pituitary Failure

- ☐ Empty Sella Syndrome
- ☐ MEN-1 (Wermer Syndrome)
- ☒ Kallmann's Syndrome

No.: 29

A 25-year-old with primary amenorrhoea shows:

TSH	1.0
ft4	7 (10-26)
9am cortisol	180 (>250)
LH	1.0
FSH	1.0
Oestradiol	<50
Prolactin	200

Short synacthen test:

Time	Cortisols
0	220
30	400
60	580

Options

- A. The patient has primary adrenal failure
- B. The patient has secondary adrenal failure
- C. The patient requires an insulin tolerance test
- D. The patient requires thyroxine as first Rx
- E. The patient requires hydrocortisone

No.: 29

C

This lady has pituitary failure. She requires an insulin tolerance test; a normal response is for growth hormone to rise above 20 mU/L (severe deficiency is indicated by a result of <9). Cortisol should rise to greater than 550, but the blood glucose must fall to less than 2.2 to achieve an adequate stress response, so that the test must be done in very controlled conditions. TRH and GnRH tests are also required to assess production of TSH, LH and FSH but this lady is likely to have failure of multiple pituitary hormones. She needs an MRI of the pituitary fossa to investigate possible causes, and is likely to require lifelong steroid hormone and thyroid hormone replacement, with additional growth hormone and pulsed GnRH hormone replacement if required.

No.: 30

A 40-year-old man with dizzy spells has the following results at the end of a 3-day fast :

Blood glucose 1.8 mmol/l

Insulin 10 (<3 mU/l)

C-peptide 600 (<75 pmol/l)

Options

- A. The patient has an insulinoma
- B. The patient has had exogenous insulin
- C. The patient has taken metformin
- D. His family should be investigated for a history of diabetes
- E. Treatment is with glucagon

No.: 30

A

Insulinomas are rare (incidence of 1 per 250,000 patient years). Median age at diagnosis is 50 where they occur in isolation, but as early as 23 where they occur as part of the MEN syndrome. 80% are present with confusion or abnormal behaviour. Much more common is abuse of sulphonylureas by a relative of a patient with Type 2 diabetes. C peptide level as well as insulin level is raised so this is not abuse of insulin. Treatments for insulinoma include surgical excision (95% are benign), diazoxide (inhibits insulin release) or somatostatin analogues.

No.: 31



This 54-year-old gentleman presents with disturbance of his vision, he has had three episodes of acute pancreatitis previously but nil else of note. Which investigation would best confirm a unifying diagnosis?

Options

- A. Check renal function
- B. Check blood pressure
- C. Check calcium
- D. Check lipids
- E. CT head

No.: 31

D

This gentleman has multiple areas of retinal haemorrhages and a prominent circinate of hard exudates. The most likely diagnosis is retinal vein occlusion related to hypertriglyceridaemia (the cause of his recurrent pancreatitis). The best way to confirm the diagnosis is a fasting lipid sample. He may of course also be hypertensive, (which wouldn't help in terms of future risk), and he should have his blood pressure checked and managed to aggressive control levels, with the addition of aspirin if there are no contraindications. Anti-coagulants used acutely in this condition have been very disappointing. There is also an association with retinal vein thrombosis and inherited disorders of coagulation.



No.: 32

A 48-year-old man presents to the endocrine clinic with raised fasting plasma glucose. He appears sun-tanned and has a loss of pubic hair on examination. His wife complains that he isn't interested in her sexually any more. Which of these blood results would you not expect?

Options

- A. Raised haematocrit
- B. Hyperglycaemia
- C. Elevated serum ferritin with reduced transferrin saturation
- D. Decreased testosterone, LH and FSH
- E. Elevated alkaline phosphatase

No.: 32

C

Serum ferritin is elevated in haemochromatosis (the diagnosis here), as is transferrin saturation, haematocrit is raised, testosterone is reduced and transaminases and alkaline phosphatase are usually abnormal. Glucose is often elevated (so called bronze diabetes). Haemochromatosis has an incidence of 1 in 300 in Caucasians, presentation in males is usually in the 40-50 year age group, and presentation in females is later due to menses acting as a natural form of phlebotomy. Phlebotomy is the treatment of choice, with a frequency designed to keep haematocrit down to below 40%. Features include diabetes, cirrhosis, cardiomyopathy and chondrocalcinosis.



No.: 33



This elderly lady has had type 1 diabetes for many years, requiring insulin therapy since diagnosis. She is concerned about the unsightly appearance of her legs. What is the cause?

Options

- A. Lack of exercise
- B. Secondary to IV drug abuse
- C. Insulin injections
- D. Myopathy secondary to thyrotoxicosis
- E. Itu myopathy

No.: 33

C

This is almost certainly lipoatrophy, with multiple hollowed out sub-cutaneous areas. The cause is thought to be an immune reaction to insulin impurities, with deposition of insulin-IgG immune complexes. With modern highly purified insulin the incidence of lipoatrophy has diminished. Lipohypertrophy is another complication associated with insulin injections, this occurs because of the local trophic action of insulin. Proximal myopathy would be expected to show quads wasting but not the multiple dimpling shown here and is usually associated with hypothyroidism.



No.: 34



This 57-year-old patient is taking thyroxine therapy and also penicillamine for rheumatoid arthritis, she has noted increasing tiredness for some time. Her husband noticed her eyelid drooping and consulted the GP. The diagnosis is :

Options

- A. Myasthenia gravis (MG)
- B. Horner's
- C. Malignant ophthalmic graves
- D. Orbital cellulitis
- E. None of the above

No.: 34

A

There are no signs to suggest ophthalmic Grave's disease or orbital cellulitis. This leaves Horner's syndrome or myasthenia gravis (MG) as possible diagnoses. The pupils are clearly the same size, and there is no sign of pupillary constriction. This makes MG as a cause of unilateral ptosis the correct answer. MG is associated with thyroid disease, rheumatoid arthritis, pernicious anaemia and SLE. Treatment is with oral anticholinesterases such as pyridostigmine. Transient MG has been associated with penicillamine treatment for rheumatoid disease.

No.: 35



This 63-year-old patient with arthritis presents with nodules on her fingers (shown) and over her elbows. The most likely cause is :

Options

- A. Rheumatoid disease
- B. Lyme disease
- C. Thyrotoxicosis
- D. Diabetes
- E. Addison's

No.: 35

A

These are most likely rheumatoid nodules, firm and intradermal lesions occurring over pressure points such as finger, elbows and over the achilles tendon. Larger nodules such as those on the elbow may ulcerate or become infected and tend to resolve when the disease is under control. If a problem they may be removed surgically or injected with corticosteroids. Histology shows a necrotic core surrounded by activated macrophages. They may also be seen on chest radiograph and there is sometimes associated pleural effusion.



No.: 36



Which of the following should be ruled out in this 64-year-old patient who presents with exaggerated facial features and increasing ring size?

Options

- A. Thyroid adenoma
- B. Cushing's disease
- C. Pheochromocytoma
- D. Increased calcitonin levels
- E. Insulinoma

No.: 36

E

This patient looks like he has acromegaly, judging by his enlarged, puffy hands, and prominent facial features, particularly his jaw. The question is pointing to an association with multiple endocrine neoplasia. Acromegaly is associated with MEN type 1, which is also associated with islet cell tumours (including insulinomas) and parathyroid adenoma/hyperplasia. MEN-2 is associated with parathyroid hyperplasia, Cushing's, Pheochromocytoma and medullary carcinoma of the thyroid (calcitonin producing).

No.: 37



This 54-year-old lady presents with weight loss and intermittent rapid irregular heart beat. The skin change in her legs is associated with :

Options

- A. Mucopolysaccharide depositions
- B. Anti-smooth muscle antibodies
- C. Anti-peroxidase antibodies
- D. Ana
- E. Cryoglobulinaemia

No.: 37

A

This lady has pre-tibial myxoedema, a condition commonly associated with Grave's disease. Characterised by thyroid antibodies which lead to thyrotoxicosis, there is an association with both thyroid eye disease and deposition of hyaluronic acid in the skin of the lower legs, leading to this characteristic appearance. The condition may respond to topical steroid creams. This lady's intermittent irregular heart beat is probably related to periods of atrial fibrillation, and her weight loss to her thyrotoxicosis.



No.: 38



This 70-year-old patient presents with a cough, what other signs may be found on examination?

Options

- A. High arch palate
- B. Carpal tunnel syndrome
- C. Abnormal TFTs
- D. Clubbing in the hands
- E. Peripheral neuropathy

No.: 38

D

The nails are thickened and yellow in colour. Yellow nail syndrome is a rare disorder of lymphatic drainage associated with bronchiectasis, pleural effusions and lymphoedema of the lower limbs. High arch palate is associated with Marfan's, carpal tunnel syndrome, neuropathy and abnormal TFTs with hypothyroidism. Clubbing is associated with bronchiectasis and hence is a feature of yellow nail syndrome.

No.: 39



This patient is mentally retarded and presents to the GP for assessment. What is the diagnosis :

Options

- A. Down's syndrome
- B. Trisomy 13
- C. Lawrence-Moon-Biedl
- D. Pseudohypoparathyroidism
- E. Hypoparathyroidism

No.: 39

D

This patient clearly has a short 4th metacarpal. The most likely diagnosis is pseudohypoparathyroidism caused by end-organ resistance to PTH due to a G-protein mutation. It is associated with short stature, shortening of the 4th metacarpal, sub-cutaneous calcification and sometimes with mental impairment. It may be associated with varying degrees of resistance to other G-protein linked hormones such as TSH, LH and FSH.

No.: 40

A previously fit 30-year-old male presents with a two months history of weight loss, tiredness, tanned skin and nausea. Investigations show: Haemoglobin 10.5 g/dL (13.0 ♦ 18.0) ,

MCV 88 fL (80 ♦ 96) ,

White cell count 6.0 X 10<sup>9</sup>/L (4 ♦ 11) ,

Platelet count 450 X 10<sup>9</sup>/L (150 ♦ 400) ,

Serum sodium 130 mmol/L (137 ♦ 144) ,

Serum potassium 5.7 mmol/L (3.5 ♦ 4.9) ,

Serum urea 3.0 mmol/L (2.5 ♦ 7.5) ,

Serum creatinine 78 umol/L (60 ♦ 110) ,

Serum Total T4 55 nmol/L (50 ♦ 150) ,

Serum TSH 8 mU/L (0.2 ♦ 5.5) .

Which of the following is the most useful diagnostic investigation :

Options

- A. Anti-thyroid peroxidase antibody titre
- B. Insulin tolerance test
- C. Free thyroxine concentration
- D. Short synacthen test
- E. TRH test

No.: 40

D

This patient presents with weight loss, tiredness and nausea. He has hyponatraemia, hypokalaemia and what appears to be a mild primary hypothyroidism. The diagnosis is likely to be Addison's (primary hypoadrenalism) disease and the most appropriate test would be a short synacthen test. An insulin tolerance test is contra-indicated in patient's in whom cortisol is less than 100 nmol/L. A TRH test is rarely performed these days and really is an irrelevance. A common error with this type of patient is to treat the thyroid function tests before diagnosing and treating the Addison's appropriately.

No.: 41

A 28-year-old female presents to clinic with a history of neck pain and difficulty in swallowing. O/E she was noted to have a tender and slightly enlarged thyroid. T4 is raised with a suppressed TSH .

Which of the following statements is incorrect?

Options

- A. Treat the patient with propranolol
- B. Associated with a prodromal viral illness
- C. Treat the patient with carbimazole
- D. If pain is very severe could give a course of steroids
- E. Can treat with NSAIDs

No.: 41

C

The history is suggestive of sub-acute thyroiditis .

\*Anti-thyroid drugs have been shown to be ineffective in these cases .

\*There is an association with viral illness .

\* NSAIDs are helpful and sometimes in severe cases a course of prednisolone may be helpful.

No.: 42



This is the X-ray of a 68-year-old with chronic renal failure. Which of the following is not a cause of this appearance?

Options

- A. Haemochromatosis
- B. CPPD (calcium pyrophosphate disease)
- C. Hyperparathyroidism
- D. Acromegaly
- E. Hypoparathyroidism

No.: 42

E

There is chondrocalcinosis; causes include CPPD, hyperparathyroidism, haemochromatosis, acromegaly, gout and Wilson's disease. This patient has hyperparathyroidism related to his renal failure. Chondrocalcinosis does not occur in hypoparathyroidism. Short 4th metacarpal may occur in patients with pseudohypoparathyroidism and this of course would be seen on hand X-ray. In advanced hyperparathyroidism locally destructive brown tumours may be seen on X-ray, but even in series where bone disease has been sought out the prevalence is only 10-15%.

No.: 43



What is the diagnosis you can make out of the X-ray of foot?

Options

- A. Acromegaly
- B. Psoriatic arthritis
- C. Reiters
- D. Diabetes
- E. CPPD

No.: 43

A

If you carefully see the X-ray ,  
Heel pad thickness >23 mm (male) .

In a Lateral heel X-ray :

\*acromegaly (showing heel pad thickness)

\* plantar spur (Reiters/psoriatic/AS/DISH/RA)







No.: 44

A 60-year-old female presents with non-specific symptoms of stress at work, reduced motivation to fulfil her personal and professional roles and the occasional tension headache. The physical examination is unremarkable and you attempt to describe to her your thoughts on the aetiology of her symptoms. You suggest counselling and or cognitive therapy, but she insists on exclusion of medical conditions and you reluctantly send some screening blood tests.

Her TFTs come back as :

Free T4 14.1

TS 6.3

If it were to be present, which of the following factors could favour any decision to initiate thyroxine therapy in the future?

Options

- A. Presence of ANA + antibody
- B. Haemoglobin of 9.9
- C. Cholesterol of 6.2 mmol/l
- D. Fasting glucose of 6.7 mmol/l
- E. Cholesterol of 4.9 and negative thyroid autoantibodies

No.: 44

C

This is probably subclinical hypothyroidism, with a TSH outside the normal range. Many clinicians now believe that treating with thyroxine at a dose to suppress TSH into the normal range is appropriate. Presence of signs and symptoms of hypothyroidism, such as hypercholesterolaemia, macrocytosis, presence of thyroid autoantibodies, menorrhagia, extreme tiredness and difficult to manage obesity may lower the threshold for treatment. Antinuclear antibodies would not lower the threshold for treatment.





No.: 45

A 60-year-old female presents with non-specific symptoms of stress at work, reduced motivation to fulfil her personal and professional roles and the occasional tension headache. The physical examination is unremarkable and you attempt to describe to her your thoughts on the aetiology of her symptoms. You suggest counselling and or cognitive therapy, but she insists on exclusion of medical conditions and you reluctantly send some screening blood tests .

Her TFTs come back as :

Free T4 14.1

TSH 6.3

Ten months later she returns and you decide to recheck her TFTs :

T4 10.9

TSH 9.6

Which of the following is not true?

Options

- A. Starting thyroxine treatment at 100mcg od could precipitate heart failure
- B. Over treatment is linked with atrial fibrillation
- C. Her cholesterol could well be higher than 6.2
- D. The evidence for starting thyroxine is weak
- E. She does not have secondary hypothyroidism.

No.: 45

D

The lady has progressed during 10 months from compensated hypothyroidism, with a raised TSH of 6.3, driving a free T4 which is in the normal range, to a further rise in TSH and a depressed T4 at 10.9. She is likely to have had further progression of her symptoms and would benefit from thyroxine therapy. This should be started at 50mcg and increased until TSH is suppressed into the normal range over a few months. Starting at 100mcg may indeed precipitate heart failure, particularly in this age group. Hypercholesterolaemia is associated with hypothyroidism as is macrocytosis.



No.: 46

An 18-year-old girl has familial hypertriglyceridaemia. She is 1.54 m and 80 kg. Her health remains well until suddenly she developed abdominal pain and vomiting one day. The following results are obtainable .

K 4.1

Urea 9.0

Creat. 130

Ca 1.9

Alb 31

Amylase 2230

Glucose 3.2

Cholesterol 10.1

TG 22.0

Could you estimate her serum sodium on arrival?

Na 129

Na 131

Na 124

Na 136

Na 162

Which of the following drugs will be most helpful in treating her underlying condition?

Options

A. Orlistat

B. Gliclazide

C. Simvastatin

D. Fenofibrate

E. Ezetimibe

No.: 46

D

Familial hypertriglyceridaemia is a cause of recurrent pancreatitis and this is the diagnosis here as evidenced by the massively raised amylase. There is also a strong association in some individuals with retinal vein thrombosis. Patients may present with a family history of either pancreatitis or retinal vein thrombosis. The best treatment for hypertriglyceridaemia is with fibrates, these drugs are known to have positive effects on both HDL and triglyceride levels. On average, they raise HDL by between 0-15% and lower triglyceride levels by 25-35%. There is still much debate about the role of triglycerides in ischaemic heart disease as it is difficult in intervention trials to separate out changes in HDL and thereby effects on CV risk from triglyceride level changes and their effects.





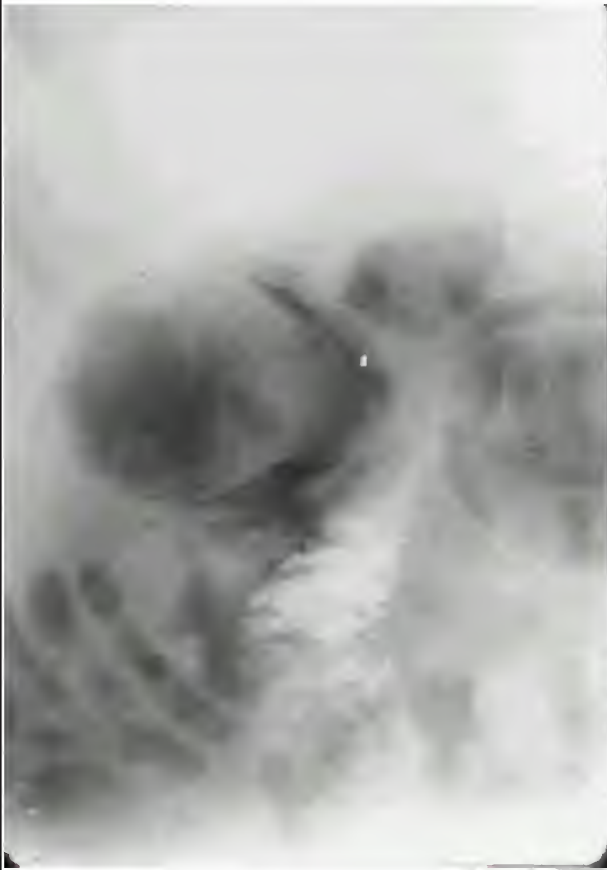
<p>No.: 47</p> <p>A 54-year-old lady is having a hysterectomy. Her pre op assessment included histories of MI in 1997, hypertension and treatment with Ramipril 5mg od, Amlodipine 10mg od and Aspirin 75mg od. BP was then 145/80 .</p> <p>Intraoperatively a mass was found beside the uterus and was palpated by the surgeon, but not biopsied. Five minutes later the anaesthetist claimed that the patient's oxygenation was worsening, clinical signs of pulmonary oedema were developing and the blood pressure rose to 190/110 .</p> <p>The diagnosis is probably :</p> <p>Options</p> <p>A. LV rupture following acute MI B. Acute accelerated hypertension due to anaesthetic drugs C. Flash pulmonary oedema due to renal artery stenosis D. Paraganglioma E. Carcinoid tumour</p>	<p>No.: 47</p> <p><b>D</b></p> <p>There is a suggestion of intra-operative hypertensive crisis here precipitated by surgical palpation of the tumour, almost certainly a nor-adrenalin producing paraganglioma. Paragangliomas are tumours arising from origin neural crest tissue outside the adrenals. They lack the necessary enzyme for conversion of nor-adrenaline to adrenaline and therefore secrete nor-adrenaline only. Paragangliomas are more likely to be malignant and to recur after resection than phaeochromocytomas. Surgical resection is the treatment of choice, but only after adequate alpha blockade with phenoxybenzamine and beta blockade. Even so, in those patients who have undergone successful tumour removal, hypertension may still persist in 25%. 5-year survival for malignant paragangliomas is as low as 44%, but if they should be benign, then survival may be as high as 90%+.</p>
<p>No.: 48</p> <p>A 31-year-old artist develops secondary amenorrhoea and presents after 2 years of it. FSH and LH are 3x the upper limit of normal but oestradiol is low. TSH is 3.5, T4 23 and prolactin 400 .</p> <p>She should :</p> <p>Options</p> <p>A. Consider HRT B. Have a DEXA scan C. Never have any more thyroid function tests D. Find her fertility to be entirely normal E. Have pituitary surgery</p>	<p>No.: 48</p> <p><b>A</b></p> <p>Prolactin of 400 is at the upper limit of the normal range but could be considered physiological at this level. The likelihood here is premature ovarian failure, likely to be autoimmune in origin, although often the aetiology is not entirely clear. The thyroid function tests are essentially normal and the raised LH/FSH count against a pituitary problem and for an ovarian pathology with the pituitary trying hard to overcome it. HRT should be considered in these patients for bone protection, but with recent studies pointing to a slightly less favourable risk/benefit ratio for HRT a careful decision about the length of treatment needs to be made.</p>





<p>No.: 49</p> <p>A 23-year-old female is brought with her mother to clinic. She has morbid obesity and a voracious appetite. It is becoming difficult to control her eating habits, but osteoarthritis has prevented her mobility from being as easy as in the past .</p> <p>The following 2 from many are the medications approved by NICE for treating obesity :</p> <p>Options Choose 2</p> <p>A. Metformin B. Phentermine C. Fenfluramine D. Dianette E. Sibutramine F. Orlistat G. Sildenafil H. Pioglitazone</p>	<p>No.: 49</p> <p>E F</p> <p>Orlistat is an inhibitor of pancreatic and gastric lipase which prevents absorption of fat from the GI tract. Any foods ingested which contain more than a very small amount of fat, result in a faecal emergency with large amounts of watery diarrhoea. With appropriate behavioural modification, patient support with dietary advice impressive weight loss can be achieved .</p> <p>Sibutramine is a centrally acting drug, originally developed as an anti-depressant but later found to be an effective appetite suppressant. It is contra-indicated in hypertension and patients should be monitored for developing blood pressure during the first month of therapy .</p> <p>Phentermine and fenfluramine are amphetamine like drugs that have been withdrawn from sale due to an association with cardiac valve defects .</p> <p>Although pioglitazone and metformin have effects on insulin resistance, neither drug is licensed specifically for weight loss, indeed glitazones are associated with weight gain in diabetics of 2-5% during the first year of therapy.</p>
<p>No.: 50</p> <p>A 23-year-old female is brought with her mother to clinic. She has morbid obesity and a voracious appetite. It is becoming difficult to control her eating habits, but osteoarthritis has prevented her mobility from being as easy as in the past .</p> <p>In terms of obesity surgery, patients may find improvements in all but one of the following associations of obesity :</p> <p>Options Choose 1</p> <p>A. Obstructive sleep apnoea B. Hypertension C. Hypertriglyceridaemia D. Hyperinsulinaemia E. Polycythaemia F. Primary hypothyroidism G. Delayed satiety</p>	<p>No.: 50</p> <p>F</p> <p>Obesity surgery has been shown to improve hypertension, dyslipidaemia and hyperinsulinaemia, all associations of the metabolic syndrome. The weight loss associated with obesity surgery has also been shown to improve obstructive sleep apnoea and associated polycythaemia. The reduction in physical size of the stomach also has benefits in early satiety. Primary hypothyroidism of course requires thyroxine therapy, but patients suffering the condition rarely lose all of their previous weight gain after beginning thyroxine treatment.</p>

No.: 51



What is the diagnosis in this very sick diabetic patient?

Options

- A. Incompetent sphincter of Oddi
- B. Periduodenal abscess
- C. Emphysematous cholecystitis
- D. Gall bladder lipomatosis
- E. Duodenal volvulus

No.: 51

C

List given - in region of duod/GB/CBD

Plain film - rounded ball of air (air=black), gas in GB and in GB wall

Patient very sick - therefore, not lipomatosis or incompetent sphincter of Oddi

Duodenal volvulus - not possible as duod is retroperitoneal

Duodenal abscess - pretty rare

Therefore, emphysematous cholecystitis is most likely

Pathophysiology of emphysematous cholecystitis :

\*Ischaemia GB wall + infection with gas-producing organism

\*Gallstone often precipitates (80%), rest - acalculous cystic duct obstruction with inflammatory oedema

\*DM more common

\*Org: clostridium perfringens, welchii, E coli, staph, strep

\*Rx: remove GB

\* Px: 15% die



<p>No.: 52</p> <p>A 27-year-old primi gravida presents at 8 weeks pregnancy with severe hyper emesis, heat intolerance, wt loss and diarrhea. Thyroid function tests show-TSH &lt;0.01, free T4 of 45 (11-24). The most appropriate treatment would be :</p> <p>Options</p> <p>A. Carbimazole B. Propylthiouracil C. Supportive, with regular monitoring D. Radioactive iodine E. Thyroidectomy</p>	<p>No.: 52</p> <p>C</p> <p>HCG, FSH, LH AND TSH are all protein hormones made of an alpha and beta subunit each. They all share the same alpha subunit so high concentrations of HCG may activate the TSH receptor resulting in biochemical thyrotoxicosis which tends to resolve with resolution of hyperemesis after 12 weeks of pregnancy .</p> <p>Grave's disease may improve during pregnancy due to pregnancy-induced immune modulation .</p> <p>Postpartum thyroiditis may present with initial thyrotoxicosis or with hypothyroidism. It often resolves, but presence of anti-thyroid antibodies may indicate autoimmune thyroid disease which persists.</p>
<p>No.: 53</p> <p>A 40-year-old gentleman presents with upper abdominal pain and is diagnosed with pancreatitis. His tests also reveal a serum calcium of 3.2, PO4 0.7, his father had died in his 30s following a stroke due to high blood pressure, and his sister was recently diagnosed with cancer of the thyroid .</p> <p>The most likely diagnosis is :</p> <p>Options</p> <p>A. Hypercalcaemia due to disseminated malignancy B. Hypercalcaemia due to acute pancreatitis C. Primary hyperparathyroidism D. Multiple endocrine neoplasia type 2 E. Vitamin D toxicity</p>	<p>No.: 53</p> <p>D</p> <p>*The most likely diagnosis is MEN 2a, as his father probably had a pheochromocytoma resulting in high blood pressure, his sister has medullary thyroid cancer (MTC) and he has primary hyperparathyroidism .</p> <p>*Primary hyperparathyroidism is common in post-menopausal women. Diagnosis in a young male should point towards a familial association .</p> <p>*Acute pancreatitis results in hypocalcaemia .</p> <p>MEN 2 is an autosomal dominant condition due to a mutation affecting the Ret- protooncogene on the long arm of chromosome 10; Ret mutations are also involved in papillary thyroid cancer and Hirschsprung's disease . MEN 2a includes MTC, pheochromocytoma (20-50%) and parathyroid tumours (10-25%) . MEN 2b includes familial MTC, pheochromocytomas, mucosal neuromas and marfanoid habitus .</p> <p>MEN 1 includes pituitary tumour (30%; commonly prolactinomas/acromegaly), parathyroid hyperplasia or adenoma (&gt;90%) and pancreatic tumours (70%; gastrinomas, insulinoma)and is autosomal dominant chr 11q. Menin proto-oncogene, many mutations. Other lesions include carcinoids, lipomas and nodular adrenal hyperplasia.</p>





<p>No.: 54</p> <p>A 64--year-old female is noted to have a calcium of 2.95 on preoperative screening for a long standing hernia. Serum albumin, phosphate and PTH levels are not elevated; urinary calcium-creatinine ratio is low. Which of the following statements best fits her condition or it's management?</p> <p>Options</p> <p>A. The treatment of choice is Parathyroidectomy          B. 25% of her offspring are expected to have high calcium levels          C. Renal stones are a common complication          D. This is due to an abnormality of the calcium sensing receptor          E. Urinary calcium creatinine ratio is an unhelpful test</p>	<p>No.: 54</p> <p><b>D</b></p> <p>The diagnosis is Familial hypocalciuric hypercalcemia, an autosomal dominant condition due to reduced sensitivity of the calcium receptor leading to the body resetting its calcium level to a higher level than expected .</p> <p>It has almost complete penetrance so 50% of her offspring are expected to be affected .</p> <p>It is a benign condition; the only complication which may rarely require parathyroidectomy is recurrent pancreatitis .</p> <p>Urine calcium creatinine excretion differentiates between primary hyperparathyroidism and FHH .</p> <p>The homozygous state causes life-threatening hypercalcemia in the neonatal period and requires total parathyroidectomy.</p>
<p>No.: 55</p> <p>A 36-year-old lady was noted to have a neck lump, examination revealed a hard goitre and lymphadenopathy. Thyroid function tests and antibodies are normal .</p> <p>The most likely diagnosis is :</p> <p>Options</p> <p>A. Follicular thyroid cancer          B. Thyroid lymphoma          C. Multinodular goitre          D. Cold nodule          E. Papillary thyroid cancer</p>	<p>No.: 55</p> <p><b>E</b></p> <p>*Papillary thyroid cancer causes 70% of all thyroid cancers, slow growing, no capsule therefore metastasises to local tissues and lymph nodes. It is commoner in women and peaks in the 2nd and 3rd decade .</p> <p>*Follicular thyroid cancer arises from the epithelium, shows capsular and vascular invasion, and therefore normally spreads haematogenously .</p> <p>*Thyroid lymphoma presents with rapid increase in size and almost always follows autoimmune hypothyroidism .</p> <p>Papillary and follicular cancer are treated with radical neck dissection and post-operative radioiodine. Thyroglobulin levels post-surgery and -radioiodine should be very low, and so is a sensitive tumour marker. Anaplastic tumours are very aggressive and do not take up radioiodine.</p>





No.: 56

A 29-year-old Indian IT consultant presents with numbness in both hands and feet, worsening over the last 6 months, following the birth of her son. Her son is exclusively breast-fed. Her blood results are :

Corrected Ca 1.56 mmol/L

PO4 0.9 mmol/L

ALP 350 mU/L

Creatinine 64 umol/L

The rest of her results are expected to show :

Options

A. Low 25 OH Vit D and high PTH

B. Low 25 OH Vit D and low PTH

C. Low 25 OH Vit D and high 1,25 OH Vit D

D. High 25 OH Vit D and high 1,25 OH Vit D

E. Normal 25 and 1,25 OH Vit D and PTH

No.: 56

A

Vitamin D deficiency is commoner in dark-skinned people, especially those who wear traditional clothes. Breast-feeding worsens vitamin D deficiency as some is secreted in milk. In Vitamin D deficiency, hypocalcaemia results in secondary hyperparathyroidism. If prolonged this may result in autonomous production of PTH, tertiary hyperparathyroidism, so that on treatment of Vitamin D deficiency hypercalcaemia develops rapidly.

No.: 57

A 34-year-old Chinese gentleman presents to A&E following his first session at the gym. He had been complaining of fatigue and weakness as well as weight loss and palpitations. On arrival he had generalised weakness, tachycardia BP 120/70 .

The most appropriate blood tests would be :

Options

A. Calcium and magnesium

B. Urinary catecholamines and calcium

C. Growth hormone and thyroid function tests

D. Potassium and thyroid function tests

E. Short synacthen test and thyroid function tests

No.: 57

D

The diagnosis is periodic paralysis, a condition that occurs mostly in Orientals associated with Graves disease. Hypokalaemia occurs with thyrotoxicosis and may result in intermittent proximal weakness or a severe generalised myopathy, with raised CPK. Episodes can be precipitated by a carbohydrate load or heavy exertion. Treatment is by treating the thyrotoxicosis and beta-blockers prevent hypokalaemia.



No.: 58

You are asked to review a patient on the ward who has glucose intolerance. He is on a number of drugs including ramipril for hypertension, and olanzapine for a psychiatric disorder. Which of these drugs is most likely to contribute to glucose intolerance?

Options

- A. ACE inhibitors
- B. Atypical anti-psychotics
- C. Thiazolidinediones
- D. Dopamine agonists
- E. Biguanides

No.: 58

B

ACE inhibitors (ramipril) in the HOPE trial have been associated with reduced insulin resistance and reduced incidence of Type 2 diabetes .

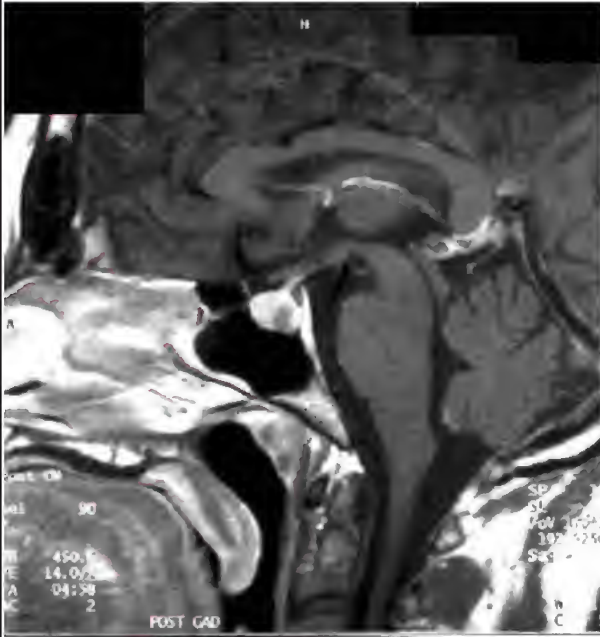
Thiazolidinediones and biguanides are treatments for Type 2 diabetes which reduce insulin resistance .

Atypical anti-psychotics have been associated with increased risk of diabetes mellitus .

Dopamine agonists, used as treatment for Parkinson's disease may be associated with increased psychiatric symptoms.



No.: 59



A 30-year-old woman, who has two healthy children, has had no menstrual periods for the past 6 months, she is not pregnant and has been on no medications. Within the past week, she has noted milk production from her breasts. MRI is on the following slide. Which of the following laboratory test findings is most likely to be present :

Options

- A. High serum cortisol
- B. High prolactin Level
- C. Lack of growth hormone suppression
- D. Low serum growth hormone
- E. Hyponatremia

No.: 59

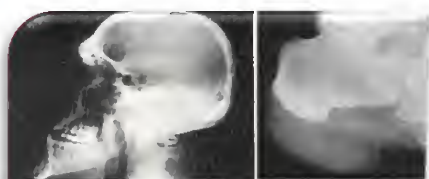
B

This woman's MRI scan shows enlargement of the pituitary gland, with what may be a cystic area within it. She has symptoms of amenorrhea and galactorrhea, which may suggest the possibility of a prolactinoma. She is likely to have a high prolactin level .

Given the size of the tumor there may be visual disturbance .

Treatment for this woman is likely to involve pre-surgery dopamine agonist therapy such as cabergoline, followed by surgical removal via the trans-sphenoidal route. She may require pituitary hormone replacement after surgery. Prolactinoma is the commonest pituitary tumor, making up 30-50% of the total.

No.: 60



This man has presented with his wife, who has noted a change in his appearance over a number of years. They bring a series of photos with them to illustrate this to you. He is a farmer who never consults the doctor and therefore has no previous medical history. Which of the following conditions are not likely to be associated with his underlying diagnosis?

Options

- A. A raised prolactin
- B. Hypertension
- C. Acanthosis Nigricans
- D. Primary hypothyroidism
- E. Primary hyperparathyroidism

No.: 60

D

An enlarged pituitary fossa, prognathism, wide spacing of teeth and prominent supra-orbital ridges are seen on the skull x-ray. Together with an increased heel thickness the diagnosis is clearly acromegaly .

There is an association between acromegaly and MEN-1; pituitary adenomas may be prolactinomas, ACTH or growth hormone secreting .

Hyperparathyroidism occurs in 95% of patients with MEN-1, and so may occur as part of the syndrome in association with acromegaly .

Acanthosis nigricans may be associated with the insulin resistance syndrome found in acromegalics, and hypertension is also common

Primary hypothyroidism is not associated with acromegaly, although of course, thyroid adenomas are associated with MEN-1 in 20% of sufferers .

Acromegaly has a prevalence of 50-60/ million; mean age at diagnosis is 40 for men, 45 for women. Trans-sphenoidal removal of tumor with surgery is the treatment of choice.

No.: 61



% Thyroid Uptake = 13.63  
Normal Uptake Range = 0.5 – 3.5%

A Tc99 thyroid uptake scan is useful in the diagnosis of all the following except :

Options

- A. Graves' disease
- B. Hashimoto's thyroiditis
- C. Toxic multinodular goitre
- D. Factitious thyrotoxicosis
- E. Amiodarone-induced thyrotoxicosis

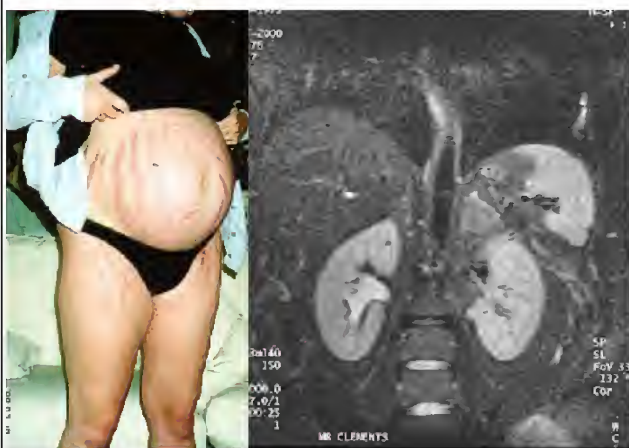
No.: 61

B

Thyroid uptake scan is very important for diagnosis of thyrotoxicosis; uniformly increased uptake is seen in Graves' disease; a heterogeneous appearance points to an multinodular goitre, while amiodarone shows suppressed uptake in spite of thyrotoxicosis.



No.: 62



A 26-year-old lady presents with increasing weight gain, hirsutism, oligomenorrhea and mood swings .

What test would not be useful in diagnosing Cushing's syndrome?

Options

- A. Low dose dexamethasone suppression test (LDDST)
- B. High dose dexamethasone suppression test (HDDST)
- C. Midnight cortisol
- D. 24 hour urinary free cortisol
- E. Overnight dexamethasone suppression test

No.: 62

B

Cushing's syndrome is due to any cause - pituitary, adrenal and ectopic .

\*HDDST is not to diagnose Cushing's but to differentiate between pituitary driven and other causes of Cushing's .

\* Screening tests for Cushing's include 24 hour urinary free cortisol (UFC), overnight dexamethasone suppression and in-hospital midnight cortisol whilst the patient is asleep. Obesity and alcoholism can cause false positive UFC and overnight dexamethasone suppression tests. To exclude these, a LDDST is important for diagnosing Cushing's syndrome.

No.: 63

In differentiating between Cushing's disease, and other causes of Cushing's syndrome the following tests are useful except :

Options


- A. High dose dexamethasone suppression test
- B. ACTH assay
- C. Low dose dexamethasone suppression test (LDDST)
- D. Bilateral inferior petrosal sampling
- E. MRI pituitary

No.: 63

C

\*LDDST confirms Cushing's syndrome but is unhelpful in differentiating the cause .

\* ACTH levels are suppressed in adrenal-dependent Cushing's and raised in Cushing's disease and very raised in ectopic ACTH production.

<p>No.: 64</p> <p>A 49-year-old peri-menopausal woman visits you to discuss the possibility of hormone replacement therapy (HRT). In which of the following situations may HRT be most useful?</p> <p>Options</p> <p>A. Treating osteoporosis in post-menopausal women B. Reducing cardiovascular risk C. Breast Cancer risk reduction D. Following Pituitary surgery in pre-menopausal women E. Fertility treatment</p>	<p>No.: 64</p> <p>D</p> 
<p>No.: 65</p> <p>A 25-year-old gentleman presents with intractable fits, his blood results reveal calcium 1.5 and PTH 0.6 .</p> <p>The following statement is true :</p> <p>Options</p> <p>A. Hypoparathyroidism does not occur after radioactive iodine treatment B. Is associated with short metacarpals C. May occur with overwhelming sepsis D. Hypocalcaemia post-thyroidectomy is always permanent E. Is associated with hypercalciuria</p>	<p>No.: 65</p> <p>A</p> <p>*Radiotherapy to the neck (larynx/pharynx) causes hypoparathyroidism in 88% patients at 5 years. Radioactive iodine does not affect the parathyroid glands .</p> <p>*Hypoparathyroidism post-thyroid surgery is often transient due to bruising of the glands .</p> <p>*Congenital hypoparathyroidism results in symptoms of hypocalcaemia, mental retardation, cataracts, papilloedema, basal ganglia calcification and extrapyramidal signs .</p> <p>* Albrights hereditary osteodystrophy (pseudo hypoparathyroidism and pseudo-pseudo hypoparathyroidism), disorder of Gs alpha resulting in short stature, obesity, round facies, short 4th and 5th metacarpals and insensitivity to PTH.</p>



<p>No.: 66</p> <p>A 28-week pregnant woman presents with glycosuria and a fasting blood sugar of 8 mmol. In gestational diabetes the following statements are true :</p> <p>Options</p> <p>A. Most patients can be managed on oral hypoglycemics throughout their pregnancy</p> <p>B. Careful observation for neonatal hyperglycemia is made post-delivery</p> <p>C. A glucose tolerance test should be done at least three times during the pregnancy</p> <p>D. Maintaining a blood glucose of 10-12 mmol/l is ideal around the time of delivery</p> <p>E. Significant worsening of diabetic retinal disease may occur</p>	<p>No.: 66</p> <p>E</p> <p>Oral hypoglycemics should not be used in pregnancy, although a small trial from the USA has shown no ill effects in patients managed with glibenclamide during pregnancy .</p> <p>Most patients can be treated with diet; about 30% will require insulin treatment. Screening is with urine dipstix and a fasting glucose or OGTT if glycosuria is detected .</p> <p>In high-risk patients screening with fasting blood glucose is done at 28 weeks .</p> <p>Maternal hyperglycemia during labor may be associated with rebound neonatal hypoglycemia after delivery.</p>
<p>No.: 67</p> <p>In the investigation of a patient who is admitted following 3 dizzy spells, each markedly improved by eating :</p> <p>Options</p> <p>A. Urine sulfonylurea levels are unhelpful</p> <p>B. A 72-hr fast should be organized, with the doctor called when the blood sugar reaches 4mmol/l</p> <p>C. Serum insulin, glucose and C-peptide should be checked every morning for 7 days</p> <p>D. Serum C-peptide will not be raised in exogenous insulin use</p> <p>E. A family history of scars in the neck is irrelevant</p>	<p>No.: 67</p> <p>D</p> <p>A 72-hour fast is the test for insulinoma resulting in hypoglycemia, but confirmatory laboratory glucose is required to prove hypoglycemia and often a short period of exercise post-fast might be required .</p> <p>It is important to exclude sulfonylurea misuse. The best way to do this is by urine toxicology for commonly used sulfonylureas and family history to confirm or refute the possibility that tablets may be obtained from a family member .</p> <p>Blood sugar/ insulin /C-peptide levels should be measured if glucose is below 2.5mmol/l, and raised insulin without a corresponding rise in C-peptide suggests the possibility of exogenous insulin injection .</p> <p>A family history of scars in the neck may suggest parathyroid surgery, and point to the possibility of MEN 1 which is associated with pancreatic endocrine tumors such as insulinoma. Hypoglycemia may be associated with other tumors such as retroperitoneal sarcoma.</p>



No.: 68



The following occur more commonly in patients with Turner syndrome, except :

Options

- A. Diabetes mellitus
- B. Autoimmune hypothyroidism
- C. Blindness
- D. Aortic dissection
- E. Osteoporosis

No.: 68

C

Turner syndrome (gonadal agenesis) is due to mostly  $X_0$ , or mosaic  $X_0/XX$ , and increased risk of DM, hyperlipidaemia, autoimmune disease, hypertension, aortic dissection and osteoporosis is seen.







No.: 69

A 20-year-old Syrian lady presents with hirsutism, oligomenorrhea and weight gain. Which of the following 2 results would not support the diagnosis of polycystic ovarian syndrome?

Options Choose 2

- A. A significantly raised 17-hydroxy progesterone
- B. A low sex hormone binding globulin
- C. A testosterone of 5
- D. An LH level 5 times greater than FSH
- E. A raised fasting insulin with a normal glucose
- F. Polycystic ovaries on a pelvic ultrasound
- G. A raised androstenedione

No.: 69

A C

\*PCOS is the commonest cause of oligomenorrhea and hirsutism affecting up to 20% of pre-menopausal women. The diagnosis is based upon 2 of the following 3 factors :

- 1Oligomenorrhea ‘
- 2Polycystic ovaries on US ‘
- 3Raised LH/FSH ratio .

\*Other associated findings are a raised testosterone usually below 4, and of ovarian origin so associated with a raised androstenedione and occasionally increased adrenal androgens with a subtle rise in DHEA .

\*Insulin resistance is a prominent feature resulting in an increased risk of diabetes, and raised insulin levels, this also affects hepatic SHBG production resulting in a significant fall which in turn makes the amount of free androgens higher, further exacerbating the hyperandrogenism .

\*Hirsutism is in a male distribution and may be associated with capital hair loss .

\* A differential diagnosis, which needs to be excluded, is late onset, non-classical CAH (partial 21-hydroxylase deficiency) that results in excess androgen production as a byproduct in an effort to increase glucocorticoid production. This results in significantly raised 17-hydroxy progesterone levels that rise further with ACTH stimulation using a short synacthen test.



<p>No.: 70</p> <p>A 73-year-old lady presents to A&amp;E with confusion and a reduced level of consciousness. She appeared euvolaemic. Investigations reveal :</p> <p>Na 105 mmol/L K 3.8 mmol/L urea 4 mmol/L glucose 5 mmol/L serum osmolality 227 mosm/kg urine osmolality 340 mosm/kg</p> <p>Which two of the following are least likely to elucidate the underlying cause?</p> <p>Options Choose 2</p> <p>A. Thyroid function tests B. Urinary sodium concentration C. CT Head D. Chest X-ray E. Short synacthen test F. Drug history G. Ultrasound scan abdomen H. MRI pituitary</p>	<p>No.: 70</p> <p><b>B G</b></p> <p>The results point towards SIADH, with hyponatraemia, a low plasma osmolality and a relatively high urine osmolality. The commonest causes of which are :</p> <p>*Drugs :</p> <ul style="list-style-type: none"> <li>-Psychiatric drugs- phenothiazines, SSRIs, MAOIs</li> <li>-Analgesics- codeine, opiates</li> <li>-Antiepileptics- carbamazepine, phenytoin</li> <li>-Chemotherapy- vincristine, vinblastine, cyclophosphamide</li> <li>-Others- clofibrate, chlorpropamide</li> </ul> <p>*Chest disease: infection, malignancy, pneumothorax, asthma, positive pressure ventilation</p> <p>*CNS disorders: CVA, SAH, head injury, subdural, meningitis/ encephalitis, Space occupying lesions</p> <p>*Endocrine disorders: hypoadrenalism, hypothyroidism, hypopituitarism, acute intermittent porphyria</p> <p>* Malignancy: lymphoma, leukaemia, sarcoma, mesothelioma, thymoma</p>
<p>No.: 71</p> <p>A 60--year-old gentleman presents with sudden onset severe headaches, and inability to read the outer half of each page of his novel. His daughter accompanies him to Accident and Emergency; he has no other focal neurology and GCS is 15/15. Which 3 investigations are most urgent?</p> <p>Options Choose 3</p> <p>A. Serum Thyroid Stimulating Hormone B. Serum Growth Hormone C. Serum Cortisol D. Serum Insulin Like Growth Factor-1 E. MRI pituitary F. Serum Testosterone G. Serum Free Thyroxine H. Serum Prolactin I. Plasma and urine osmolalities</p>	<p>No.: 71</p> <p><b>C E H</b></p> <p>The history is suggestive of pituitary apoplexy with sudden onset headache and bitemporal hemianopia .</p> <p>Cortisol deficiency is life threatening and should be investigated ideally with a short synacthen test however if a random cortisol is low, treatment with glucocorticoids (hydrocortisone) should be started and a SST performed later when synacthen is available .</p> <p>An MRI confirms the diagnosis, and ideally surgery should be performed within 10 days .</p> <p>Thyroid, androgen and growth hormone replacement if deficient is non-urgent and may be assessed later .</p> <p>Prolactin secreting tumors are treated medically with dopamine agonists and may not require surgery unless there are visual field defects, however they very rarely cause apoplexy.</p>



<p>No.: 72</p> <p>In male hypogonadism testosterone replacement is important for all the following except :</p> <p>Options Choose 1</p> <p>A. Fertility B. Bone mineral density C. Mood stabilisation D. Maintaining a normal haemoglobin E. Libido F. Muscle strength</p>	<p>No.: 72</p> <p>A</p> <p>Testosterone impairs spermatogenesis due to suppression of gonadotrophins . In patients with pituitary-dependent hypogonadism, gonadotrophin injections may be administered for improving fertility and are successful in 70% following pituitary surgery.</p>
<p>No.: 73</p> <p>The following are common complications of Cushing's syndrome, except :</p> <p>Options Choose 1</p> <p>A. Osteoporosis B. Proximal myopathy C. Hyperglycaemia D. Hypertension E. Hypokalaemia F. Weight gain G. Infertility H. Galactorrhoea</p>	<p>No.: 73</p> <p>H</p> <p>Hypokalaemia and hypertension are due to the mineralocorticoid effect of excess glucocorticoids. Cushing's disease is mostly due to pituitary microadenomas so hyperprolactinaemia and stalk compression is rarely seen.</p>



No.: 74

A 56-year-old lady presents with flushing, wheeze and diarrhea. Her urinary 5-HIAA levels are significantly raised. Which of the following statements is not true?

Options Choose 1

- A. Right sided valvular lesions may occur
- B. Tumor metastasis has probably already occurred
- C. Somatostatin analogs may be used for treatment
- D. Diarrhea is often self limiting
- E. Embolization of focal liver metastasis has been used
- F. Pellagra may develop
- G. Hormone crisis may occur with surgery and infections
- H. Plasma chromogranin A is always raised

No.: 74

D

The history suggests carcinoid syndrome, the commonest sites are intestine and appendix although any APUD cells can produce carcinoid tumors .

Prior to testing for raised 5-HIAA patients should be supplied with a diet sheet as ingestion of foods such as nuts or bananas may lead to a false positive test .

The full carcinoid syndrome usually only occurs in conjunction with liver metastases .

Tricuspid and pulmonary valve lesions occur .

Diarrhea is often the most problematic symptom and improves with somatostatin analogs, although often escalating doses are required .

Chemotherapy is generally palliative and not very effective .

Hepatic embolization may be used for embolization .

The only potentially curative treatment is surgery, but the patient who is amenable to surgical treatment is rare, as metastases have almost always occurred at point of diagnosis.





No.: 75

The rheumatologists refer an 18-year-old gentleman to you; he has severe bilateral knee osteoarthritis due to obesity. Which of the following 3 statements are true?

Options Choose 3

- A. Surgery is the most effective form of treatment
- B. Single gene defects may be the cause in this man
- C. Cushing's syndrome is a common cause of obesity
- D. Fenfluramine is often used in obesity treatment
- E. Orlistat and Serbutamine are only licensed in patients who cannot lose weight with diet and exercise
- F. Orlistat is a pancreatic amylase inhibitor
- G. Leptin deficiency has been successfully treated with Leptin replacement

No.: 75

A B G

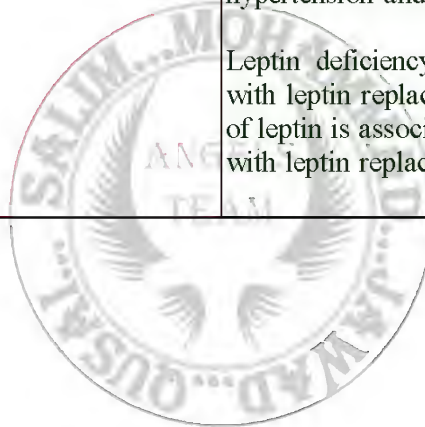
Obesity is partly determined by diet and partly by genetic factors (20-40%). Mostly polygenic, rarely single gene defects e.g. leptin deficiency, Prader Willi, Laurence Moon Biedl may occur .

Weight loss prior to initiating orlistat should exceed 3kg in 6-12 weeks. Orlistat is a pancreatic lipase inhibitor, approx 10% wt loss a year, for up to 2 yrs .

Sibutramine is a centrally acting serotonin and noradrenaline reuptake inhibitor; it should be used with caution in patients with vascular disease and hypertension .

Fenfluramine and Dexfenfluramine have been withdrawn from the market due to risks of pulmonary hypertension and valvular heart disease .

Leptin deficiency has indeed been successfully treated with leptin replacement, it appears that absolute absence of leptin is associated with lack of satiety; this is restored with leptin replacement.





No.: 76

An 80--year-old man presents with deafness and was diagnosed with Paget's disease. Which of the following 2 statements are true?

Options Choose 2

- A. Spreads from bone to bone
- B. Hypercalcemia is common
- C. Osteosarcoma is a common complication
- D. Predisposes to fractures
- E. Deafness is always due to nerve compression
- F. Bisphosphonates are not useful for treatment
- G. Hypercalcemia is common
- H. Alkaline phosphatase is usually raised

No.: 76

D H

Paget's disease is multifocal but does not spread. It is associated with increased bone resorption and over compensatory osteoblast activity leading to hypertrophied, weakened bone .

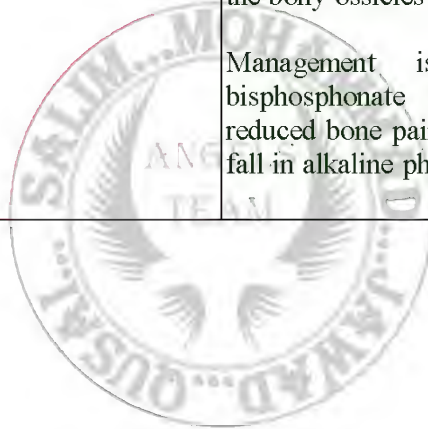
Calcium levels are rarely raised, but have been described in patients who have suffered a period of prolonged immobility .

Heart failure is also rarely described in association with Paget's .

Osteosarcoma is a rare but serious complication and is said to occur in less than 1% of Paget's patients .

Deafness may occur secondary to pagetic involvement of the bony ossicles .

Management is usually with intermittent IV bisphosphonate therapy, which is associated with reduced bone pain, and biochemical improvement with a fall in alkaline phosphatase.



No.: 77

A 65-year-old lady presents with weight loss, tiredness and dizziness on standing (picture on following slide) .

Which of the following blood results would not fit with the diagnosis?



Options Choose 1

- A. Sodium 129 mmol/L
- B. Calcium 2.8 mmol/L
- C. Potassium 5.9 mmol/L
- D. Bicarbonate 19 mmol/L
- E. Eosinophils 2%
- F. Creatinine 100 umol/L
- G. Glucose 7.9 mmol/L

No.: 77

G

Addison's disease is primary adrenal insufficiency, which results in high K, Low Na, mild metabolic acidosis, mild hypercalcaemia and eosinophilia. It is also associated with a raised urea and hypoglycaemia.





No.: 78

You review a newly diagnosed 48-year-old woman who has Type 2 diabetes. When considering her prognosis and treatment, which of the following stems fits best?

Options

- A. Blood pressure control is less important than glycemic control
- B. HbA1c is an accurate measure of blood sugars in the past 3 months in all patients
- C. Some cases of Type 2 diabetes are due to autosomal dominant inheritance
- D. Framingham equations for primary prevention of CHD, use diabetes as an independent risk factor
- E. In the UK, Thiazoladinediones are best used in triple combination therapy

No.: 78

C

UKPDS (United Kingdom prospective diabetes study) showed that tight blood pressure control with a reduction in 10/5 mmHg was the most significant factor in reducing both microvascular and macrovascular complications of Type 2 diabetes mellitus .

HbA1c reflects glycosylation of circulating hemoglobin in red cells and is greatly affected by the glycemic state in the 2-4 weeks prior to the test. HbA1c is an inaccurate test in any patient with increased red cell turnover or hemolysis .

Maturity onset diabetes of the young is the commonest form of Type 2 diabetes caused by a single gene defect, a number of different mutations exist .

Diabetes is not an independent risk factor in the Framingham equation; the UKPDS risk engine is a better and more accurate determinant of cardiovascular risk in diabetes .

Thiazoladinediones (glitazones) in the UK are licensed as add-on treatment following failure to achieve good glycemic control with either metformin or a sulfonylurea alone, or now as monotherapy in those patients unable to take metformin. They are particularly useful in the overweight as effect may be related to total fat mass. They are not currently licensed for triple therapy although some clinicians achieve good results. In combination with insulin in particular, they may cause fluid retention which may be a problem in anesthesia.





No.: 79

A 45-year-old obese lady with new onset Type 2 diabetes visits her GP for review of her lipid results. She has raised LDL and triglycerides. Secondary hyperlipidemia occurs frequently in all of the following except :

Options

- A. HMG CoA reductase inhibitor therapy
- B. Hypothyroidism
- C. HIV +ve patients on protease inhibitor therapy
- D. Nephrotic Syndrome
- E. New-onset diabetes

No.: 79

A

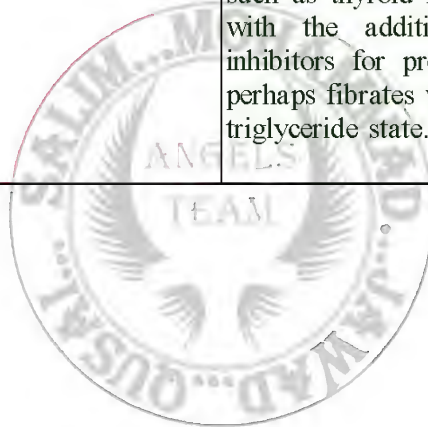
Causes of secondary hyperlipidemia include :

Diet, diabetes, chronic renal failure, insulin resistance syndromes, anorexia nervosa, drugs (thiazides, glucocorticoids, estrogens, cyclosporine, protease inhibitors, retinoids), hypothyroidism, nephritic syndrome, chronic liver disease, cholestasis, pregnancy .

HMG CoA reductase inhibitors are statins, they predominantly bring about a fall in LDL cholesterol, but at high dose may also have positive effects on triglycerides .

All the other stems are recognized causes of secondary hyperlipidemia .

Management includes treatment of the underlying cause, such as thyroid hormone treatment for hypothyroidism, with the addition of either HMG-CoA reductase inhibitors for predominantly high LDL cholesterol, or perhaps fibrates where the patient is in a low HDL-high triglyceride state.





<p>No.: 80</p> <p>In the treatment of diabetes, the following statements are all true except :</p> <p>Options</p> <p>A. Insulin glargine (Lantus) is a new short acting insulin</p> <p>B. Insulin can be made through recombinant genetic techniques</p> <p>C. Metformin treatment, in suitable patients, has been shown to have prognostic benefit</p> <p>D. Subcutaneous insulin pump delivery can produce hour-by-hour rate variation appropriate to the patient's requirements</p> <p>E. Insulin treatment with pump therapy initially, then for at least 3 months following a myocardial infarction appears to have mortality benefit in the treatment of Type 2 diabetics</p>	<p>No.: 80</p> <p>A</p> <p>Glargine is an ultra long acting insulin with a theoretical total 24-hr profile. Recombinant human insulin is now widely available and porcine and bovine insulins that were used previously have now largely fallen out of favor .</p> <p>Metformin treatment in the UKPDS study was shown to have cardiovascular benefit in the treatment of Type 2 diabetes. Statistically significant improvements in myocardial infarction rate were demonstrated despite a smaller fall in hemoglobin A1c than the intensive (Sulfonylurea or insulin arm). This would suggest that the CV benefit came from the mechanism of action of metformin .</p> <p>Subcutaneous insulin pump therapy has been associated with reduced total insulin requirement in Type 1 diabetes, and a reduced hypoglycemia rate in those patients prone to hypos. Insulin treatment in diabetes after myocardial infarction in Type 2 diabetes for 3 months was shown to give a mortality benefit. It was however unclear whether the benefit derived from insulin therapy in the DIGAMI study was due to the use of insulin or due to discontinuation of previous anti-diabetic medication. DIGAMI 2 is awaited to answer this question.</p>
<p>No.: 81</p> <p>In a patient with hypomagnesaemia, which of the following statements is not true :</p> <p>Options</p> <p>A. Recent cisplatin treatment could have been the cause</p> <p>B. Hypocalcaemia may occur</p> <p>C. Neuromuscular symptoms are similar to those in hypocalcaemia</p> <p>D. Prolonged vomiting is an indication for high-dose oral magnesium supplementation</p> <p>E. Hungry bone syndrome is associated with reduced serum magnesium</p>	<p>No.: 81</p> <p>D</p> <p>Hypomagnesaemia results in defective PTH secretion and secondary hypocalcaemia.</p>



<p>No.: 82</p> <p>A 50-year-old woman with a history of ischemic heart disease and hypertension has had 2 years of attacks comprising hot flushes and palpitations. Her 24-hour urinary catecholamines show a markedly raised noradrenaline 4 times the upper limit of the normal range. She should have treatment with :</p> <p>Options</p> <p>A. Phenoxybenzamine  B. Diltiazem and Metoprolol  C. Atenolol initially  D. Emergency surgery if her blood pressure is now 170/100  E. Alpha blockade, possibly beta blockade, then surgery when normotensive</p>	<p>No.: 82</p> <p>E</p> <p>Pheochromocytoma is treated with alpha blockade, then beta blockade then surgery. Peak age at presentation is 30 - 50 years of age. It follows the rule of 10s; 10% are extra-adrenal, 10% malignant, 10% familial, 10% occur in children, 10% involve both adrenals .</p> <p>They may be associated with multiple endocrine neoplasia II, neurofibromatosis or Von Hippel Lindau Disease (retinal angioma, CNS hemangioblastoma, renal cell carcinoma, pancreatic cysts and epididymal cystadenocarcinoma. Localization is with MRI and MIBG scanning, ♦ selective vena caval sampling. 5-year survival rate is 95% for benign disease, 40% for malignant pheochromocytoma.</p>
<p>No.: 83</p> <p>A 62-year-old man has microalbuminuria at his yearly review for type 2 diabetes. Which of the following recommendations are in line with NICE as to the management of nephropathy in type 2 diabetes?</p> <p>Options</p> <p>A. The target HbA1c is about 8%  B. A renal consult is advised only if the serum creatinine rises above 250 ♦mol/l  C. All patients, with confirmed microalbuminuria, if no contraindications, should be on an ACE inhibitor  D. Blood pressure is less important than reducing the degree of proteinuria  E. Calculating ratios of albumin and creatinine in the urine is not as useful as the total urine protein level</p>	<p>No.: 83</p> <p>C</p> <p>For this guideline and the retinopathy, <a href="http://www.nice.org.uk">www.nice.org.uk</a> contains full information. Recommended range of HbA1c is 6.5 - 7.5%, the blood pressure target is tight at 135/75. Higher risk of renal failure exists at albumin: creatinine ratio &gt;2.5 (men) and &gt;3.5 (women). A renal consult is advised if creat. &gt;150. ACE inhibition is the drug of choice for management of increased BP in this group, where there is cough on ACE inhibitor, an angiotensin receptor blocker such as losartan or valsartan should be substituted .</p> <p>These guidelines should be adhered to as tightly as possible, if we go back in time 30 years, development of nephropathy was associated with renal failure within 10 years, diabetes mellitus is still the commonest cause of renal failure in the western world, even with aggressive management of blood pressure and blood glucose.</p>





No.: 84

A 46-year-old patient presented to his GP with headaches, sweating and polyuria. The headaches are worse first thing in the morning. The GP suspects that this might be acromegaly. Only one of the following statements is correct.

## Options

- A. Diabetes mellitus is present in more than 50% of cases
- B. Mortality from respiratory complications is increased 6-fold
- C. Pheochromocytoma is an important association
- D. The vast majority of cases are due to a pituitary microadenoma
- E. Goitre is not associated with acromegaly

No.: 84

B

Acromegaly is a condition characterised by excessive production of growth hormone (GH). GH stimulates production of insulin-like growth factor 1 or IGF-1 from the liver, and levels of IGF-1 are also elevated in acromegaly.

The most common cause of acromegaly is a pituitary tumour. The majority of these (>60%) are macroadenomas. A third of pituitary tumours secreting GH will also co-secrete prolactin. A smaller proportion can also co-secrete TSH causing thyrotoxicosis. In addition there is an increased incidence of multi-nodular goitres in acromegaly.

Clinical manifestations, signs and symptoms are related to the effects of GH and IGF-1 on various tissues.

\*General: Headaches, excessive sweating

\*Peripheries: Enlargement of hands and feet, thickening of dorsum of hands, carpal tunnel syndrome

\*Cardiovascular: Hypertension, ischaemic heart disease, cardiomyopathy

\*Facial: Enlarged supra-orbital ridges, bitemporal hemianopia, prognathism, macroglossia, increased inter-dental spaces

\*Goitre: Usually multinodular which may cause thyrotoxicosis

\*Respiratory: There is an increased incidence of obstructive sleep apnoea in acromegals. This is primarily due to airway obstruction from tissue enlargement (e.g. macroglossia) and prognathism. OSA can result in early morning headaches, daytime somnolence and excessive snoring at night

\*Metabolic consequences include development of diabetes mellitus (~15% although glucose intolerance is present in 60-70%), hypercalciuria in 80% and hypercalcaemia in association with MEN I and hyperparathyroidism. Pheochromocytomas are not associated with acromegaly

\*Locomotor: Arthropathy

\*Malignancy: Increased risk of colonic polyps and carcinoma of the colon

## Diagnosis :

1. 1-minute OGTT with GH measurements.

Diagnosis established if GH levels fail to suppress to less than 2 mU/L. False positives i.e. failure of GH to suppress with glucose loading occurs with liver and renal failure, adolescent age groups, diabetes mellitus and malnutrition.

2. IGF-1 levels elevated.

Random GH measurements are useless ♦ normal individuals will have undetectable GH over 75% of the time.

3. MRI and NOT CT is the imaging modality of choice for pituitary tumours.

Increased mortality in acromegaly is mainly from cardiovascular disease (25%), respiratory disease (20%) and stroke (15%). Mortality from respiratory causes can be increased as much as 6-fold, especially in males.

## Treatment

1. Treatments to lower GH levels

i) Surgery ♦ transphenoidal and transfrontal hypophysectomy. Surgical cure better for microadenomas (>85%) than macroadenomas (~ 60-65%). Cure defined as nadir GH of <5 mU/L on OGTT.

ii) Dopamine agonists e.g. bromocriptine ♦ more useful if pituitary adenoma co-secretes prolactin.

iii) Somatostatin analogues such as octreotide or Lanreotide ♦ not only reduce GH levels but also cause tumour shrinkage

iv) Radiotherapy ♦ can take up to 10 years to work and adverse effects include CVA (thrombosis of MCA), hypopituitarism, radiation necrosis of brain tissue and optic nerve neuropathy.

2. Treatment to lower IGF-1 alone

Pegvisomant ♦ GH receptor antagonist. It is extremely effective at normalising IGF-1 levels in acromegals that have previously failed to respond adequately to other treatments. Growth hormone levels will rise.

## Causes of acromegaly :

\*Pituitary adenoma secreting GH

\*Pituitary carcinoma (very rare) secreting GH

\*Hypothalamic tumour secreting GHRH (very rare)

\*Carcinoid tumour secreting GHRH (very rare)





No.: 85

A 46-year-old patient presented to his GP with headaches, sweating and polyuria. The headaches are worse first thing in the morning. The patient goes on to have investigations to confirm the diagnosis. Only one of the following is correct :

## Options

- A. Suppression of growth hormone to less than 10 mU/L during an oral glucose tolerance test excludes the condition
- B. Liver failure may give rise to false-positive test on OGTT
- C. A random growth hormone greater than 25 mU/L secures the diagnosis
- D. CT scan of pituitary is helpful
- E. IGF-II levels are elevated

No.: 85

B

Acromegaly is a condition characterised by excessive production of growth hormone (GH). GH stimulates production of insulin-like growth factor 1 or IGF-1 from the liver, and levels of IGF-1 are also elevated in acromegaly .

The most common cause of acromegaly is a pituitary tumour. The majority of these (>60%) are macroadenomas. A third of pituitary tumours secreting GH will also co-secrete prolactin. A smaller proportion can also co-secrete TSH causing thyrotoxicosis. In addition there is an increased incidence of multi-nodular goitres in acromegaly .

Clinical manifestations, signs and symptoms are related to the effects of GH and IGF-1 on various tissues .

\*General: Headaches, excessive sweating

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\*Cardiovascular: hypertension, ischaemic heart disease, cardiomyopathy

\*Facial: enlarged supra-orbital ridges, bitemporal hemianopia, prognathism, macroglossia, increased inter-dental spaces

\*Goitre: usually multinodular, which may cause thyrotoxicosis

\*Respiratory: there is an increased incidence of obstructive sleep apnoea (OSA) in acromegals. This is primarily due to airway obstruction from tissue enlargement (e.g. macroglossia) and prognathism. OSA can result in early morning headaches, daytime somnolence and excessive snoring at night .

\*Metabolic consequences: include development of diabetes mellitus (~15%, although glucose intolerance is present in 60-70%), hypercalciuria in 80% and hypercalcaemia in association with MEN I and hyperparathyroidism. Pheochromocytomas are not associated with acromegaly .

\*Locomotor: arthropathy

\*Malignancy: increased risk of colonic polyps and carcinoma of the colon

Diagnosis :

.1.1minute OGTT with GH measurements

Diagnosis established if GH level fails to be suppressed to less than 2 mU/L. False positives i.e. failure of GH to be suppressed with glucose loading occurs with liver and renal failure, adolescent age groups, diabetes mellitus and malnutrition .

.2.IGF-1 levels elevated

Random GH measurements are useless ♦ normal individuals will have undetectable GH over 75% of the time .

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Increased mortality in acromegaly is mainly from cardiovascular disease (25%), respiratory disease (20%) and stroke (15%). Mortality from respiratory causes can be increased as much as 6-fold, especially in males .

Treatment :

.1.Treatments to lower GH levels

ji) Surgery ♦ trans-sphenoidal and trans-frontal hypophysectomy. Surgical cure is better for microadenomas (>85%) than macroadenomas (~ 60-65%). Cure is defined as nadir GH of <5 mU/L on OGTT

jii) Dopamine agonists e.g. bromocriptine ♦ more useful if pituitary adenoma co-secretes prolactin

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jiv) Radiotherapy ♦ can take up to 10 years to work and adverse effects include CVA (thrombosis of MCA), hypopituitarism, radiation necrosis of brain tissue and optic nerve neuropathy

.2.Treatment to lower IGF-1 alone

Pegvisomant ♦ GH receptor antagonist. It is extremely effective at normalising IGF-1 levels in acromegals, who have previously failed to respond adequately to other treatments. Growth hormone levels will rise

Causes of acromegaly :

\*Pituitary adenoma secreting GH

\*Pituitary carcinoma (very rare) secreting GH

\*Hypothalamic tumour secreting GHRH (very rare)

\* Carcinoid tumour secreting GHRH (very rare)



No.: 86

A 46-year-old patient presented to his GP with headaches, sweating and polyuria. The headaches are worse first thing in the morning. Regarding treatment of the patient with acromegaly, only one of the following is correct :

## Options

- A. Surgical cure rates for macroadenomas are better than those for microadenomas
- B. Pegvisomant normalises GH levels
- C. Radiotherapy is associated with an increased risk of cerebrovascular accidents
- D. Somatostatin analogues do not cause tumour shrinkage
- E. Dopamine agonists are of no benefit in acromegaly

No.: 86

C

## Acromegaly :

4-3 \*new cases per million persons per year

\*Pituitary adenoma is the commonest cause

\*Rarer causes include GHRH tumours of the hypothalamus and pituitary carcinoma

\*Mean age at diagnosis is 40 for men and 45 for women

Acromegaly is a condition characterised by excessive production of growth hormone (GH). GH stimulates production of insulin-like growth factor 1 or IGF-1 from the liver, and levels of IGF-1 are also elevated in acromegaly .

The most common cause of acromegaly is a pituitary tumour. The majority of these (>60%) are macroadenomas. A third of pituitary tumours secreting GH will also co-secrete prolactin. A smaller proportion can also co-secrete TSH causing thyrotoxicosis. In addition there is an increased incidence of multi-nodular goitres in acromegaly .

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\*Cardiovascular: Hypertension, ischaemic heart disease, cardiomyopathy

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\*Goitre: Usually multinodular which may be associated with thyrotoxicosis

\*Respiratory: There is an increased incidence of obstructive sleep apnoea in acromegals. This is primarily due to airway obstruction from tissue enlargement (e.g. macroglossia) and prognathism. OSA can result in early morning headaches, daytime somnolence and excessive snoring at night

\*Metabolic consequences include development of diabetes mellitus (~15% although glucose intolerance is present in 60-70%), hypercalciuria in 80% and hypercalcaemia in association with MEN I and hyperparathyroidism. Pheochromocytomas are not associated with acromegaly

\*Locomotor: Arthropathy

\*Malignancy: Increased risk of colonic polyps and carcinoma of the colon

## Diagnosis :

-120 .1minute OGTT with growth hormone (GH) measurements .

Diagnosis established if GH levels fail to suppress to less than 2 mU/L. False positives i.e. failure of GH to suppress with glucose loading occurs with liver and renal failure, adolescent age groups, diabetes mellitus and malnutrition .

.2IGF-1 levels elevated /

Random GH measurements are useless ♦ normal individuals will have undetectable GH over 75% of the time .

.3MRI and NOT CT is the imaging modality of choice for pituitary tumours

Increased mortality in acromegaly is mainly from cardiovascular disease (25%), respiratory disease (20%) and stroke (15%). Mortality from respiratory causes can be increased as much as 6-fold, especially in males .

## Treatment

.1Treatments to lower GH levels :

ii) Surgery ♦ transsphenoidal and transfrontal hypophysectomy. Surgical cure better for microadenomas (>85%) than macroadenomas (~ 60-65%). Cure defined as nadir GH of <5 mU/L on OGTT .

iii) Dopamine agonists e.g. bromocriptine ♦ more useful if pituitary adenoma co-secretes prolactin .

iiii) Somatostatin analogues such as octreotide or lanreotide ♦ not only reduce GH levels but also cause tumour shrinkage .

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.2Treatment to lower IGF-1 alone

Pegvisomant ♦ GH receptor antagonist. It is extremely effective at normalising IGF-1 levels in acromegals that have previously failed to respond adequately to other treatments. Growth hormone levels will rise.



No.: 87

A 25-year-old white male presents with sudden onset, severe weakness of his legs. He has flaccid weakness rated 2/5 of hip flexion and extension. The power in his legs recovers spontaneously over the next 6 hours. Investigations reveal  $\text{Na}^+$  140 mmol/l,  $\text{K}^+$  2.7 mmol/l, urea 4 mmol/l, creatinine 90  $\mu\text{mol/l}$ . He has no family history of neurological problems. His TSH is  $<0.03$  mU/l.

What is the diagnosis?

Options

- A. Familial periodic paralysis
- B. Guillain Barre syndrome
- C. Thyrotoxicosis proximal myopathy
- D. Thyrotoxic periodic paralysis
- E. Cushing's syndrome

No.: 87

D

Thyrotoxic periodic paralysis is a rare association of thyrotoxicosis that affects mainly Oriental men (prevalence ~14%, whereas in Caucasians the prevalence is closer to 0.4%). Men are affected much more frequently than women  $\diamond$  ratio 20:1. It is the commonest secondary cause of hypokalaemic periodic paralysis (HPP). The acute event responds to potassium replacement, and gradually frequency of presentation with weakness diminishes with treatment of the underlying thyrotoxicosis.

Hyperthyroidism affects 2% of women and 0.2% of men during their lifetimes. Grave's disease is the cause in over 90% of cases. Other causes include toxic multinodular goitre and toxic adenoma.







No.: 88

A 36-year-old male has a blood pressure of 180/100. He also has left ventricular hypertrophy on echocardiography. His Na<sup>+</sup> is 145 mmol/L, K<sup>+</sup> 3.2 mmol/L, urea 6 mmol/L and creatinine 95  $\mu$ mol/L. Plasma renin activity is suppressed, plasma aldosterone 348 pmol/L (140-400 pmol/L).

What is the correct diagnosis?

Options

- A. Primary aldosteronism
- B. Liddle's syndrome
- C. Pheochromocytoma
- D. Renovascular disease
- E. Liquorice ingestion

No.: 88

A

Primary aldosteronism is defined as unregulated secretion of aldosterone. Primary aldosteronism is said to be responsible for hypertension in 1-2% of cases, and is commoner in females. 70% of cases are due to bilateral adrenal hyperplasia and adrenal adenomas (Conn's syndrome) of less than 1 cm in size.

**Important caveats :**

- i) The prevalence of primary aldosteronism in hypertensive patients is a lot more common than once thought and approaches 15-20%.
- ii) Over 50% of cases are normokalaemic although spontaneous hypokalaemia in a hypertensive patient should warrant investigation for mineralocorticoid hypertension.
- iii) Aldosterone levels in primary aldosteronism can be in the normal range.
- iv) The aldosterone to plasma renin activity ratio or ARR is a very useful screening test for this condition. ARR greater than 750 is suggestive of primary aldosteronism. An elevated ARR has a 93% specificity for primary aldosteronism and predicts those most likely to respond to spironolactone.
- v) Conditions that modify renin or aldosterone secretion can give rise to false negative or false positive results.

**False positive ARR :**

Beta-blockers, clonidine and alpha methyl-dopa lower renin  
Hyperkalaemia raises aldosterone

**False negative ARR :**

Dihydropyridine, calcium channel blockers and diuretics increase renin  
Hypokalaemia and spironolactone lowers aldosterone

**Causes of low renin, low/undetectable aldosterone levels mineralocorticoid hypertension :**

- .1 Liddle's syndrome
- .2 Mutations of 11-beta hydroxysteroid dehydrogenase
- .3 Liquorice ingestion
- .4 Deficiency of 11 hydroxylase (congenital adrenal hyperplasia)

**Causes of elevated renin hypertension :**

- .1 Malignant hypertension
- .2 Renovascular hypertension
- 3. Tumours secreting renin





No.: 89

A 40-year-old woman complains of mood swings, easy bruising skin, oligomenorrhea and weight gain over the last 3 months. She has also noticed increasing hair growth on her face and trunk. She appears plethoric .

Which two initial investigations will help exclude the most likely diagnosis?

Options Choose 2

- A. High-dose dexamethasone suppression test
- B. Inferior petrosal vein sampling
- C. Midnight cortisol
- D. Transvaginal ultrasound scan of the ovaries
- E. Overnight dexamethasone suppression test
- F. Thyroid function tests
- G. MRI scan pituitary
- H. CT scan adrenals
- I. Testosterone and sex hormone binding globulin levels

No.: 89

C E

%60of cases of Cushing's syndrome are caused by pituitary ACTH excess (Cushing's disease), 30% of cases are related to adrenal neoplasms, and the other 10% are related to ectopic ACTH production (e.g. from bronchial carcinoma). Tests for establishing the diagnosis of Cushing's are detailed below .

Establishing Cushing's/excluding diagnosis :

- .1Overnight dexamethasone suppression test
- .2Midnight cortisol
- 24 .3hour urinary free cortisol ♦ 3 collections
- .4Low dose dexamethasone suppression test

Above test(s) abnormal :

Is it adrenal, ectopic or pituitary origin?

- .1Measure ACTH levels

If ACTH low or undetectable, then adrenal source likely  
♦ request CT adrenals

If ACTH detectable, then possibly ectopic or pituitary origin ACTH driven Cushing's?

- .2High dose dexamethasone suppression test

Normal suppression suggestive of pituitary Cushing's disease ♦ get MRI scan

Failure to suppress suggestive of ectopic ACTH production e.g. small cell lung carcinoma



No.: 90

A 67-year-old male is admitted to hospital with a 3-month history of cough, weight loss and is found to have pneumonia. His blood tests are as follows: Na<sup>+</sup> 113 mmol/L, K<sup>+</sup> 3.5 mmol/L, Urea 4 mmol/L, Creatinine 104  $\mu$ mol/L.

Which two of the following would support a diagnosis of syndrome of inappropriate ADH secretion?

Options Choose 2

- A. Urine sodium greater than 40 mmol/l
- B. Plasma osmolality of 300 mOsm/kg
- C. Urine osmolality 25 mOsm/kg
- D. Volume depleted state
- E. Normal thyroid function tests
- F. Increase in serum sodium with infusion of normal saline
- G. Decreased cortisol secretion
- H. Normal MRI scan of pituitary
- I. Urine sodium <20 mmol/l
- J. Hypokalaemia

No.: 90

A E

SIADH is common, and is said to account for 50% of hyponatraemia detected in hospitals, the diagnostic criteria for SIADH are as follows :

- .1Low plasma osmolality <275 mOsm/kg/H<sub>2</sub>O
- .2Urine osmolality greater than plasma osmolality or >350 mOsm/kg/H<sub>2</sub>O
- .3Urine sodium >40 mmol/L
- .4Euvolemic
- .5Normal TFT and normal glucocorticoid reserve

All of the above must be fulfilled in order for SIADH to be diagnosed .

Causes include :

- \*malignant disease ,
- \*chest pathology ,
- \*intracranial disease, and
- \*drugs such as chlorpropamide, thiazide diuretics, chemotherapy agents, carbamazepine, phenothiazines and monoamine oxidase inhibitors .

Prognosis is dependent on cause, but mortality is high when sodium is less than 110, and may be as high as 40% .

Treatment is with fluid restriction and may involve the use of demeclocycline which induces partial nephrogenic diabetes insipidus.



No.: 91

A 67-year-old male is admitted to hospital with a 3-month history of cough, weight loss and is found to have pneumonia. His blood tests are as follows: Na<sup>+</sup> 113 mmol/L, K<sup>+</sup> 3.5 mmol/L, urea 4 mmol/L, creatinine 104 μmol/L. His sodium corrects to 132 mmol/L by the next day .

Which one of the following is correct?

Options

- A. If central pontine myelinolysis is going to occur, it will be evident the same day
- B. Serum sodium should not be corrected any faster than 2 mmol/L/hour
- C. Demeclocycline is most likely to have caused this
- D. Central pontine myelinolysis affects only the pons
- E. In established, chronic hyponatraemia, intracellular concentrations of organic solutes are low

No.: 91

E

Sodium should not be corrected any faster than 0.5 mmol/L/hour .

Hypertonic saline is only reserved for those patients with severe, symptomatic hyponatraemia of acute (<48 hours) onset. The infusion should be stopped once serum sodium reaches 125 mmol/L .

In hyponatraemia, brain intracellular osmolality is initially greater than extracellular osmolality. Organic solutes are therefore expelled in an effort to prevent brain cells from swelling and rupturing. This process occurs over days. It is therefore dangerous to correct serum sodium too rapidly before solutes are given a chance to enter back into the cells .

Demeclocycline takes 2-3 days to work and causes a nephrogenic diabetes insipidus type response. It is used as treatment for SIADH which fails to respond adequately to fluid restriction .

SIADH numbers pneumonia or bronchial carcinoma amongst possible respiratory causes .

Central pontine myelinolysis can be either pontine or extra-pontine.





<p>No.: 92</p> <p>A 30-year-old male presents to his GP with a 6-week history of weight loss, palpitations, heat intolerance and excessive sweating. He is clinically toxic. Which test best confirms the diagnosis of Graves disease?</p> <p>Options</p> <p>A. Anti-myeloperoxidase antibodies B. TSH receptor antibodies C. Anti-thyroglobulin antibodies D. Measurement of TSH and FT4 E. CT neck</p>	<p>No.: 92</p> <p><b>B</b></p> <p>Hyperthyroidism affects 2% of women in their lifetimes and 0.2% of men. Over 80% of thyrotoxicosis cases are due to Graves disease. There is an association with HLA-B8 and DR-3 subtypes and it presents most commonly before the age of 60 years. Anti-TSH receptor antibodies are more specific to Graves disease and are positive in 90% of cases. TSH-receptor antibodies can be of the stimulating or blocking type and at different times of the disease one may predominate .</p> <p>Anti-myeloperoxidase (TPO) and anti-thyroglobulin antibodies may also be positive in 80% of patients with Graves disease but are also positive in autoimmune hypothyroidism. Graves eye disease can be unilateral and can occur before thyrotoxicosis becomes evident and continue after the thyrotoxicosis has been treated .</p> <p>Unilateral eye disease, however, warrants an urgent CT scan of the orbit to exclude a retro-orbital tumour, which is an important differential diagnosis.</p>
<p>No.: 93</p> <p>A 69-year-old woman with chronic obstructive airway disease is admitted to hospital. She had been unwell for 10 days with a flu-like illness and was given antibiotics by her GP with little benefit. In hospital she is given nebulisers, antibiotics and prednisolone. Routine thyroid function tests: TSH &lt; 0.03, FT4 - 55 pmol/L (11-23), FT3 -12 pmol/L (3-6). Thyroid scan shows reduced global uptake. She has very little neck pain .</p> <p>What is the most likely diagnosis?</p> <p>Options</p> <p>A. Sick euthyroid syndrome B. De Quervain's thyroiditis C. Failure of peripheral conversion of FT4 to FT3 D. Graves disease E. Subclinical thyrotoxicosis</p>	<p>No.: 93</p> <p><b>B</b></p> <p>De Quervain's thyroiditis is an inflammatory condition characterised by the release of pre-formed thyroid hormones from thyroid colloid following a viral upper respiratory tract infection or sore throat. The use of prednisolone in this patient probably masked any pain she may have otherwise had. Anti-thyroid medications or radioactive iodine will not work since the condition is related to the release of pre-formed hormones and not the increased synthesis of new hormones. ESR tends to be elevated. Thyroid scan typically shows significantly reduced uptake. Treatment is often unnecessary except for analgesia and corticosteroids for pain and beta-blockers for symptoms of thyrotoxicosis. The thyrotoxic phase is transient and gives way to hypothyroidism before the gland eventually recovers. About 10% remain permanently hypothyroid .</p> <p>Graves disease would be associated with increased uptake on thyroid scanning.</p>





No.: 94

A 28-year-old female is referred to the endocrine clinic for galactorrhoea, mastalgia, and secondary amenorrhoea. She takes quetiapine for schizophrenia that is currently under control. Her prolactin is 17350 mU/L (125-325), TSH 1.4 mU/L, urinary beta-hCG is negative.

What is the most likely diagnosis?

Options

- A. Quetiapine-induced hyperprolactinaemia
- B. Non-functioning adenoma causing stalk compression
- C. Microprolactinoma
- D. Pregnancy
- E. Macroprolactinoma

No.: 94

Atypical anti-psychotics are liable to elevate prolactin levels by virtue of the fact they antagonise dopamine, the normal prolactin inhibitory factor. However, prolactin levels as high as 17,000 mU/L is not the norm in medication-induced hyperprolactinaemia and at this level is usually due to a large pituitary macroadenoma secreting prolactin. Pregnancy is unlikely since urinary beta-hCG is normal.

Expected prolactin levels :

Normal 300-500 mU/L

Pregnancy up to 8000

Dopamine antagonists up to 5000

Microadenomas up to 4000

Macroadenomas can be as high as 1,000,000, if not higher

Non-functioning adenoma with stalk compression up to 4000

Visual field testing is an essential part of the work-up for macroprolactinoma. Evidence of optic nerve compression is an indication to proceed asap to trans-sphenoidal tumour resection.

Microprolactinomas are usually managed with dopamine agonists such as bromocriptine.

Examples of drugs which cause raised prolactin levels include :

- \*cimetidine ‘
- \*verapamil ‘
- \*metaclopramide ‘
- \*oral contraceptives ‘
- \*MAO inhibitors, and
- \*phenothiazines .

Pituitary tumours leading to raised prolactin levels may occur as part of the MEN-1 syndrome.



No.: 95

A 51-year-old male is referred from the respiratory clinic, as there is concern he is passing too much urine. His plasma glucose, potassium and calcium are all normal. He has a water deprivation test and the results of his urine osmolality are as follows :

At the end of the dehydration phase- 285 mOsm/kg  
After desmopressin is given- 585 mOsm/kg

What is the correct diagnosis?

Options

- A. Cranial diabetes insipidus (cranial DI)
- B. Nephrogenic DI
- C. Partial cranial DI
- D. Primary polydipsia secondary to sarcoidosis
- E. SIADH

No.: 95

C

Water deprivation test is performed primarily to distinguish cranial from nephrogenic DI

The diagnosis of DI is satisfied when :

- ☐ Urine is hypotonic <300 mOsm/kg ,
- ☐ Plasma osmolality elevated >300 mOsm/kg ,
- ☐ Patient is polyuric >2 ml/kg/min, and
- ☐ Serum sodium is >145 mmol/l .

This patient has inappropriately dilute urine at the end of the dehydration phase of the water deprivation test consistent with a diagnosis of diabetes insipidus. However following desmopressin, there is a partial but inadequate response (one would expect urine osmolality to rise above 750 mOsm/kg following desmopressin). The diagnosis is thus partial cranial diabetes insipidus .

Diagnosis and expected urine osmolality :

Normal after dehydration >750 mOsm/kg, after desmopressin >750

Cranial DI <300, >750

Nephrogenic DI <300, <300

Partial cranial/nephrogenic DI 300-750, <750

Primary polydipsia 300-750, <750

His symptoms are likely to respond to chronic therapy with intra-nasal/anti-diuretic hormone, although patients need to take care to take an appropriate dose, as use to excess may precipitate hyponatraemia and water overload.



No.: 96

A 41-year-old male has a sudden, severe headache and is brought into A&E. CT scan shows an anterior communicating artery aneurysm, which is subsequently clipped. Five days later the following blood tests are obtained :

Na<sup>+</sup> 120 mmol/l ,

K<sup>+</sup> 4 mmol/l ,

Urea 5 mmol/l ,

Serum osmolality 250 mOsm/kg ,

Urine Osmolality 389 mOsm/kg .

His admission sodium was 134 mmol/l. He is thirsty and his urine output averages 140 ml/hour .

What treatment would you advise?

Options

A. Fluid restriction <750 ml/day

B. Fluid restriction <1000 ml/day

C. Desmopressin

D. Normal saline infusion to keep up with urine output

E. Demeclocycline

No.: 96

**D**

This patient has cerebral salt wasting syndrome (CSWS) secondary to clipping of an anterior communicating artery aneurysm. The distinction between CSWS and SIADH is clinically difficult but the following differences are noted :

CSWS SIADH

Serum sodium Low Low

Serum urea Increased Low

Urine volume Very high Low

Urine sodium >>40 mmol/l >40 mmol/l

Thirst Thirsty+ Not thirsty

CVP pressure Low Normal (euvolemic)

CSWS and SIADH ♦ key clinical differences and features :

CSWS is an important but controversial cause of hyponatraemia, especially in neurosurgical patients. Unlike SIADH, these patients have a renal salt wasting problem (exact cause still unknown), hence the increased urine output, raised urea, low CVP reading and increased thirst. These patients need normal saline infusion rather than fluid restriction ♦ the latter will do more harm. Following challenge with normal saline, one would expect to see the serum sodium rise, and the condition should slowly resolve.



No.: 97

A 53-year-old male presents with sudden onset headache, decreased level of consciousness, nausea, vomiting and visual disturbances. He is noted to have a complete III lesion on the right. He underwent a surgical procedure and subsequently had blood tests which revealed the following :

Na<sup>+</sup> 125 mmol/L  
K<sup>+</sup> 4.0 mmol/L  
Creat 80 umol/L  
TSH 2 mU/L (0.5-4.5)  
fT<sub>4</sub> 4.8 pmol/L (11-22)  
9am cortisol 200 nmol/L  
ACTH 2 (2-7)  
LH 2  
FSH 3.2  
Testosterone 7 nmol/L (10-35)

What would you do first?

Options

- A. Give hydrocortisone
- B. Give thyroxine
- C. Replace testosterone
- D. Repeat MRI scan
- E. Check thyroid antibodies

No.: 97

This patient has had pituitary apoplexy or infarction. Hemorrhagic infarction of a pituitary adenoma results in rapid growth of the tumour .

Clinical features :

- .1 Headaches ♦ from stretching of the dura surrounding the sella
- .2 Vomiting from raised intracranial pressure
- .3 Ocular palsies of III, IV, VI from cavernous sinus compression
- .4 Visual field defects from compression of optic chiasm
- .5 Facial pain/ altered facial sensation - V nerve palsy (located in cavernous sinus)
- .6 Compression of carotid artery ♦ stroke
- .7 Horner ♦ s syndrome
- .8 Pan hypopituitarism

His endocrine disturbance reveals that he has hypopituitarism and it is extremely important that a patient has adequate hydrocortisone onboard before thyroxine is added in. Thyroxine can precipitate an acute adrenal crisis. In addition, glucose levels may be low due to deficiency of ACTH, growth hormone and thyroxine and supplementation may be necessary .

Risk factors for pituitary infarction :

- \* Post-partum period (Sheehan ♦ s syndrome)
- \* Diabetes
- \* Hypertension
- \* Vasculitis
- \* Trauma
- \* Radiotherapy
- \* Coagulopathy
- \* Endocrine stimulation tests ♦ especially LHRH and TRH stimulation tests





No.: 98

A 21-year-old woman complains of episodes of palpitations, blurred vision and sweating which are relieved by eating. She has a 72-hour fast during which she has a symptomatic hypoglycaemic event. Blood tests obtained during this time reveal the following :

Plasma glucose 1.9 mmol/L  
 Plasma insulin 93 pmol/L (<30 pmol/L)  
 Plasma C-peptide levels suppressed  
 Urine sulphonylurea screen negative .

Only one of the following is correct :

Options

- A. Diagnosis is an insulinoma .
- B. Factitious cause is most likely .
- C. Retroperitoneal tumour secreting insulin-like growth factor II .
- D. Blurred vision is a symptom of adrenergic response to hypoglycaemia rather than a neuroglycopenic symptom.
- E. Exercise should be discouraged during a 72-hour fast.

No.: 98

72hour fast is the gold standard test for diagnosing an insulinoma. Over 90% of patients with an insulinoma will have a positive test by 48 hours and close to 100% by 72 hours .

Measurements of plasma glucose, C-peptide, proinsulin, plasma beta-hydroxybutyrate and plasma and urine sulphonylurea screen are taken at the time of hypoglycaemic symptoms and/or if BM <2.5 mmol/l .

Response to 72-hour fast :

\*Insulinoma: During the time of hypoglycaemia (symptoms and/or glucose <2.5 mmol/l), insulin levels will be elevated >30 pmol/l, C-peptide which is co-secreted in equimolar concentrations will also be elevated >0.2 nmol/l. Proinsulin levels will also be increased, typically greater than 5 pmol/l and plasma levels of beta-hydroxybutyrate will be low .

\* Factitious use: Insulin levels will be high but C-peptide levels (which reflects endogenous release of insulin) will be suppressed. Abuse of sulphonylureas promotes endogenous insulin release and therefore causes raised insulin and C-peptide levels. A detailed family history is useful (to elicit information about access to tablets), as is urine assay for commonly used sulphonylureas.



No.: 99

A 33-year-old woman is being investigated for secondary infertility. She has the following test results :

Prolactin 1670 mU/l

TSH 19.4 mU/l (0.5-4.5) fT4.9 pmol/l (11-24)

Pregnancy test negative

MRI scan shows slight enlargement of pituitary gland

Pelvic USS: No evidence of polycystic ovaries

What treatment would you offer?

Options

- A. Bromocriptine
- B. Bromocriptine and L-thyroxine
- C. Pituitary surgery
- D. L-thyroxine
- E. Clomiphene and metformin

No.: 99

D

This lady has primary hypothyroidism. Her TSH is elevated and the TRH levels from the hypothalamus will also be elevated. TRH causes prolactin levels to increase and also causes hyperplasia of the thyrotroph cells in the pituitary that secrete TSH. Thus treatment of the hypothyroidism itself should result in normalisation of prolactin levels and resolution of thyrotroph hyperplasia .

Elevated prolactin levels cause infertility by inhibiting pulsatile gonadotropin secretion. Her prolactin level would be expected to fall within a few weeks of commencing thyroxine therapy .

Bromocriptine is a dopamine agonist and used as standard therapy for microprolactinoma. Clomiphene and metformin is used to induce ovulation in patients with polycystic ovarian syndrome who are resistant to treatment with metformin alone .

The incidence of hypothyroidism increases with age, amongst patients greater than 60 years, 6% of women and 2.5% of men have raised TSH more than twice the upper limit of normal. Hashimoto's thyroiditis is the commonest cause of hypothyroidism above the age of 8 years.



No.: 100

A 37-year-old woman is admitted with abdominal pains for which she has been investigated for the last 9 months but no cause found as yet. Her blood results reveal the following :

Na<sup>+</sup> 128 mmol/L, K<sup>+</sup> 4.1 mmol/L, Urea 7 mmol/L, Bicarbonate 20 mmol/L

She goes on to have a short synacthen test; the results of which are as follows :

0min cortisol: 210 nmol/l

30min: 350 nmol/l

60min: 410 nmol/l

Which one of the following is true?

Options

A. Secondary (ACTH deficiency) adrenal failure is the most likely diagnosis .

B. Primary adrenal failure is the most likely diagnosis .

C. Her aldosterone levels are likely to be pathologically low .

D. Very long chain fatty acid levels may be high .

E. Her abdominal pain is probably due to a cause other than cortisol deficiency.

No.: 100

A

This woman has secondary hypoadrenalism associated with ACTH deficiency. The reason for this includes :

- Partial but inadequate response to short synacthen test and
- Normal potassium .

Measurement of ACTH levels (low in secondary hypoadrenalism) will help differentiate primary from secondary hypoadrenalism .

Potassium is normal in secondary hypoadrenalism because aldosterone secretion is chiefly regulated by angiotensin II and since the adrenals have not been infiltrated or destroyed, the zona glomerulosa remains capable of secreting aldosterone .

Hyponatraemia, however, is a feature of any cause of hypocortisolaemia since cortisol facilitates secretion of a water load .

In primary adrenal failure, cortisol response to a short synacthen test is usually flat and/or fails to rise above 500 nmol/l .

Hydrocortisone and fludrocortisone is required in the treatment of primary adrenal failure since both cortisol and aldosterone production is affected. It is important to rule out panhypopituitarism, and this patient should be screened for secondary hypothyroidism due to deficiency of TSH .

In addition, it is important to establish if pituitary release of LH/FSH is also normal and that she is ovulating, as there may be issues with reduced fertility or osteoporosis if the sexual cycle is affected.



<p>No.: 101</p> <p>A 76-year-old woman is admitted to hospital because of weight loss, failure to cope and confusion. She has a past history of breast cancer, successfully treated by mastectomy and a 5-year course of tamoxifen. Her blood results are as follows :</p> <p>Urea 9 mmol/l, creatinine 120 umol/l, corrected calcium 3.01 mmol/l, phosphate 0.8 mmol/l, alkaline phosphatase 160, PTH 7 pmol/l (2-8)</p> <p>-24hour urine calcium: creatinine clearance ratio in normal range .</p> <p>The correct diagnosis is :</p> <p>Options</p> <p>A. Hypercalcaemia secondary to renal impairment .</p> <p>B. Hypercalcaemia of malignancy .</p> <p>C. Primary hyperparathyroidism .</p> <p>D. Familial hypocalciuric hypercalcaemia .</p> <p>E. Parathyroid carcinoma.</p>	<p>No.: 101</p> <p><b>C</b></p> <p>Biochemical abnormalities associated with primary hyperparathyroidism include increased calcium levels associated with elevated or inappropriately normal PTH, low phosphate, and high-normal or increased 24-hour urinary calcium excretion .</p> <p>Hypercalcaemia of malignancy is associated with low PTH levels although PTH related peptide levels maybe increased. Familial hypocalciuric hypercalcaemia is associated with low calcium urinary excretion .</p> <p>Parathyroid carcinoma is a rare, aggressive carcinoma associated with significant elevations in both calcium and PTH levels. Prevalence of hyperparathyroidism is around 1 in 1000, although in post menopausal women prevalence may be as high as 3%. Up to 50% of patients may be asymptomatic .</p> <p>A single adenoma is found in around 80% of patients. Parathyroid gland hyperplasia occurs in around 20% .</p> <p>Hyperparathyroidism may occur in association with MEN I or MEN II. Treatment may involve excision of a single adenoma, or removal of multiple parathyroids where there is parathyroid gland hyperplasia.</p>
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No.: 102

A 65-year-old male is admitted with confusion, constipation and bony pains. His corrected calcium is 3.35 mmol/l, urea 14 mmol/l and creatinine 186 umol/l .

What would you do next?

Options

- A. Give pamidronate
- B. Give calcitonin
- C. Dialysis
- D. Give intravenous fluids
- E. Give frusemide

No.: 102

The most important initial treatment of hypercalcaemia is intravenous fluids ♦ as much as 6-8 litres may be required in severe cases. This allows restoration of intravascular volume, enhances renal perfusion and therefore urinary calcium excretion .

Frusemide may also facilitate renal excretion of calcium but should only be used once the patient is hydrated. Similarly, Pamidronate is more effective when the patient is hydrated and less likely to damage the kidneys .

Prednisolone is rarely used, but may be useful in myeloma or sarcoidosis, dose range 30-60 mg/day .

Causes of hypercalcaemia include excess parathyroid hormone, malignant disease, hypervitaminosis D, excessive calcium intake, thyrotoxicosis, Addison's disease, thiazide diuretics, vitamin D analogues, chronic lithium use, and vitamin D .

One rare inherited cause may be familial hypocalciuric hypercalcaemia.

No.: 103

A 29-year-old male complains of headache, sweating and palpitations. The headaches are worse after exercise. 2 years ago he had an abdominal USS, which revealed a renal cyst. He has a BP of 145/70 mmHg and a pulse rate of 80, regular. Neurological testing revealed gait ataxia, nystagmus and finger-nose ataxia .

What is the correct diagnosis?

Options

- A. Carcinoid syndrome .
- B. Von Hippel Landau syndrome with pheochromocytoma .
- C. Neurofibromatosis type 1 with pheochromocytoma .
- D. Polycystic kidney disease .
- E. Insulinoma.

No.: 103

Von Hippel Landau syndrome (also known as retinocerebellar angiomas) is an autosomal dominant condition. Features include :

- 1. Pheochromocytoma ♦ may be asymptomatic, onset around 29 years of age. 10% extra-adrenal and about 5% malignant. Prognosis depends on malignant status (5-year survival from malignant pheochromocytoma only 40%, compared to 95% for benign)
- 2. Renal and cerebellar hemangioblastoma
- 3. Renal cysts, pancreatic cysts and renal carcinoma .

It is to be suspected that his headaches are related to increased release of catecholamines after exercise. Diagnosis of pheochromocytoma is made with 24 h urinary catecholamine collection .

Similar conditions to Von Hippel Landau include ataxia telangiectasia and Osler-Weber-Rendu syndrome.



No.: 104

A 21-year-old female is admitted with a history of tetany, paraesthesia and has positive Trousseau's sign. Blood results are as follows :  
Corrected calcium 1.79 mmol/L, phosphate 1.9 mmol/L, 25 OH-vit D 65 nmol/l (35-80), alk phosphatase 90. PTH infusion: increased urinary phosphate excretion .

What is the correct diagnosis?

Options

- A. Hypoparathyroidism .
- B. Type 1a pseudohypoparathyroidism .
- C. 1,25 vitamin D deficiency .
- D. Vitamin D resistant rickets .
- E. Chronic renal failure.

No.: 104

A

Causes of hypocalcaemia can be divided into those associated with low or high levels of PTH (parathyroid hormone) .

.1Low PTH states :

- \*Hypoparathyroidism
  - Congenital e.g. DiGeorge syndrome
  - Acquired: surgical, autoimmune, radiation, genetic defects in PTH secretion e.g. activated parathyroid calcium ion sensing receptor .
- \*Hypomagnesaemia .

.2Increased PTH levels may be found associated with :

- \*Chronic renal failure
- \*Pseudohypoparathyroidism
- \*Vitamin D deficiency .

Pseudohypoparathyroidism is a PTH resistance disease state :

- \*Type Ia: Albright hereditary osteodystrophy  
Phenotype ♦ short stature, brachydactyly (short 4 and 5th metacarpals), round face, central obesity, mental retardation  
Renal resistance to PTH ♦ decreased urinary cAMP response to PTH infusion in the proximal tubule and decreased urinary phosphate excretion .
- \*Type Ib ♦ Renal resistance to PTH, decreased urinary cAMP response to PTH infusion but normal phenotype .
- \*Type II ♦ normal urinary cAMP response but decreased urinary phosphate excretion in response to PTH infusion. Phenotype normal .

Pseudopseudohypoparathyroidism: phenotypic features of pseudohypoparathyroidism without the biochemical abnormalities. Diagnosis can often be determined on biochemical parameters .

Hypoparathyroidism - low PTH, raised phosphate levels, normal alkaline phosphatase, vitamin D .

Pseudohypoparathyroidism - PTH markedly increased, otherwise the same biochemistry as hypoparathyroidism .

Vitamin D deficiency - increased PTH, low/normal phosphate, increased alkaline phosphatase, low vitamin D .

Chronic renal failure - increased PTH, phosphate and alkaline phosphatase normal 25 vitamin D, low 1,25 vitamin D.



No.: 105

A 25-year-old male presents to casualty with abdominal pains. He is found to have 3 small duodenal ulcers on OGD. His blood results are as follows :

Na<sup>+</sup> 143, K<sup>+</sup> 3.1, urea 8 mmol/l, creatinine 95 μmol/l, LFT normal, corrected calcium 2.9 mmol/l, phosphate 0.65 mmol/l. Prolactin 2560 mU/l, TSH 1.8 uM/l (0.5-4.5) fT4 17 pmol/l (11-22) .

Which 2 of the following are correct?

Options Choose 2

- A. The genetic defect is located on chromosome 10
- B. He has a good chance of surgical cure for the peptic ulcer disease
- C. He is at risk of pheochromocytoma
- D. The most common entero-pancreatic tumour is an insulinoma
- E. There is an increased risk of foregut carcinoid
- F. Average age of onset of hyperparathyroidism is 5 years of age
- G. The most common pituitary tumour in this disorder secretes ACTH
- H. Hyperparathyroidism is usually due to a single adenoma
- I. Mutations involve the RET proto-oncogene
- J. There is an increased incidence of non-functioning adrenal tumours.

No.: 105

J E

This presentation is suggestive of MEN I or Werner's syndrome, which is associated with mutation of MENIN gene located on chromosome 11 and with endocrine tumours of pituitary, pancreas and parathyroids .

Primary hyperparathyroidism - the most common manifestation of MEN 1 affecting 95% of individuals: usual age of onset around 25 years. More than one parathyroid tends to be affected (adenomas or hyperplasia). Disease tends to be mild .

Pituitary tumours associated with MEN-1: most common is a prolactinoma (60% of pituitary tumours in MEN I), followed by GH secreting pituitary tumours (25%) and 5% secrete ACTH .

Entero-pancreatic tumours associated with MEN-1: most common is a gastrinoma accounting for 40-50% of all pancreatic tumours. There is very little scope for surgical cure of a gastrinoma and is also associated with the chief cause of morbidity and mortality in MEN I .

Gastrinomas cause recurrent peptic ulcers, diarrhoea and steatorrhea. Other pancreatic tumours that may occur in MEN I include insulinomas, pancreatic polypeptide secreting tumours, somatostatinomas, VIPoma and glucagonomas .

Other tumours: there is an increased incidence of foregut carcinoids, non-functioning tumours of the adrenal cortex, lipomas and facial angiofibromas.





No.: 106

A 65-year-old male complains of back pain. A lumbar spine X-ray reveals vertebral crush fracture of first lumbar vertebrae (L1). Dual energy X-ray absorptiometry (DEXA) scan result: T-score at the spine -4.0, hip -2.4 . Which 2 of the following are correct?

Options Choose 2

- A. Family history of osteoporosis is not important in men  
 B. Gold standard treatment is Didronel PMO (cyclical etidronate with calcium)  
 C. Aromatase deficiency can cause osteoporosis in men  
 D. Parathyroid hormone (PTH) is an effective treatment for osteoporosis  
 E. Weight bearing exercise does not prevent osteoporosis  
 F. Obese and not lean individuals are more at risk of osteoporosis  
 G. Coeliac disease is protective against osteoporosis  
 H. Osteoporosis is a recognized adverse effect of Warfarin therapy  
 I. Alkaline phosphatase is a marker of bone resorption  
 J. Wrist bones are affected before spinal bones

No.: 106

C D

Osteoporosis risk factors :

A. Low Bone Mineral Density

- Elderly, post-menopausal  
 Family history  
 Smoking, alcohol, thin body habitus  
 Dietary ❖ deficiency of calcium  
 Physical inactivity

B. Increased risk of falls

- Visual disturbances  
 Hyponatremia  
 Recurrent falls  
 Medications  
 Neurological

**Secondary causes of osteoporosis**

- Cushing ❖s, exogenous glucocorticoids  
 Malabsorption, coeliac disease  
 Liver disease  
 Hypogonadism including low testosterone, Turner ❖s syndrome, anorexia, aromatase deficiency  
 Diabetes mellitus, thyrotoxicosis  
 Myeloma, primary hyperparathyroidism  
 Mastocytosis  
 Heparin

Synthetic PTH is a recognized anabolic treatment for osteoporosis .

Markers of bone formation Alkaline phosphatase, osteocalcin

Markers of bone resorption Urinary hydroxyproline, N and C- telopeptide

Treatments :

Calcium and Vitamin D supplements Both usually required especially in post-menopausal women  
 Bisphosphonates Etidronate is generally weaker than risedronate and alendronate. In addition etidronate has to be given intermittently since regular use can cause osteomalacia. The newest bisphosphonate is ibandronate, available as a 150 mg monthly oral dose. This may offer compliance and efficacy advantages.





No.: 107

A 46-year-old man undergoes a 75 g oral glucose tolerance test in light of a family history of type 2 diabetes. The results are as follows: 0-min glucose: 6.0 mmol/l, 120-min glucose: 11 mmol/l .

Only 2 of the following are correct :

Options Choose 2

- A. He has impaired fasting glucose .
- B. He has type 2 diabetes .
- C. He has both impaired fasting glucose and impaired glucose tolerance .
- D. He has impaired glucose tolerance only .
- E. His risk of developing ischaemic heart disease is similar to an established type 2 diabetic .
- F. Blockade of renin-angiotensin system has not been shown to reduce progression to type 2 diabetes .
- G. Beta cell output of insulin is reduced .
- H. Gliclazide has been shown to reduce progression to type 2 diabetes .
- I. He needs a fasting glucose, at the very least every 3 years, to rule out progression to type 2 diabetes.

No.: 107

D E

Diagnostic criteria for impaired glucose tolerance and impaired fasting glucose (IGT and IFG, respectively) are as follows :

IGT: 0-min glucose <7 mmol/l, 120-min glucose 7.8 mmol/l to 11.0 mmol/l

IFG: fasting glucose between 6.1 mmol/l and 6.9 mmol/l inclusive

Type 2 diabetes on OGTT 0 min: 7.0 mmol/l and above, 120 min: 11.1 and above

Type 2 diabetes on fasting glucose alone: greater than 7.1 mmol/l .

IGT patients are important, they represent the pre-diabetic stage, have a high risk of progression to type 2 diabetes, and risk of ischaemic heart disease is increased 2 to 4-fold ♦ similar to type 2 diabetes. Therefore, risk factors including obesity, hypertension and hyperlipidaemia should be targeted aggressively .

Metformin, acarbose, troglitazone, exercise and weight loss have all been shown to significantly reduce risk of progression to type 2 diabetes .

Patients need at the very least an annual fasting glucose since development of type 2 diabetes may be silent .

ACE inhibitors and statins have been shown to reduce progression to type 2 diabetes although the studies were not powered to detect this. This may be related to insulin sensitising or anti-inflammatory properties associated with these drugs.



No.: 108

A 39-year-old man presented to the endocrine clinic for investigation of hypertension. He complained of headaches, sweating, palpitations and anxiety. BP was 180/95 mmHg. Investigations confirm the presence of an adrenal phaeochromocytoma .

Which 2 of the following are correct?

Options Choose 2

- A. Activation of B2 adrenergic receptors by catecholamines causes vasodilatation .
- B. Phenoxybenzamine 10 mg q.d.s should be started straight away .
- C. Propranolol is contraindicated .
- D. MIBG scan is not required if the diagnosis is confirmed with urine catecholamine tests .
- E. He is more likely to have flushing than pallor .
- F. Urinary catecholamines is the most sensitive test for phaeochromocytoma .
- G. Hypoglycaemia is a feature .
- H. 30% are extra-adrenal .
- I. Labetalol is effective .
- J. A MAG-3 renal scan should be requested prior to surgery.

No.: 108

A J

Phaeochromocytoma :

Triad of headaches, sweating and palpitations has 94% sensitivity for phaeochromocytoma in a hypertensive patient .

Pallor is more common than flushing

B2 adrenergic action causes vasodilatation ♦ thus giving unopposed non-selective beta-blockade results in loss of vasodilatation and worsening hypertension .

Patients are first given phenoxybenzamine, an alpha-blocker, at a dose of 10 mg and increased every 2 hours until the patient is taking 10 mg four times a day. The dose is only increased if tolerated (measure BP). The next day propranolol is added. Labetalol is a poor choice since it has relatively less alpha blockade .

A MAG-3 renal scan is needed pre-operatively to exclude a phaeochromocytoma that maybe attached to the kidney. MIBG scan is required to exclude extra-adrenal and/or malignant spread .

Prognosis of phaeochromocytoma depends on malignant status, for benign tumours 5-year survival approaches 95%, unfortunately for malignant disease survival is much diminished at only 40% .

Phaeochromocytomas are also associated with MEN-2 and neurofibromatosis.



No.: 109

A 26-year-old female complains of weight gain, hirsutism, and irregular periods .

Testosterone 5.4 nmol/l (0-3)

LH 7 mU/l, FSH 2 mU/l .

What two tests will help you rule out important differential diagnosis?

Options Choose 2

A. 17-OH progesterone response to synacthen .

B. Random cortisol .

C. Sex hormone binding globulin .

D. CT scan adrenals .

E. Androstenedione levels .

F. Overnight dexamethasone suppression test .

G. Pelvic ultrasound scan of ovaries .

H. Dihydrotestosterone levels .

I. Prolactin levels .

J. Luteal phase 17-OH progesterone.

No.: 109

A F

A testosterone level greater than 5 is unlikely to be due to polycystic ovarian syndrome alone. In fact, testosterone levels in PCOS rarely rise above 3. Thus, a testosterone greater than 5 nmol/l in a woman should alert the physician to the possibility of a cause other than PCOS .

The important causes are: late onset of congenital hydroxylase deficiency (CAH) due to partial deficiency of 21 hydroxylase, Cushing's syndrome, ovarian and adrenal androgen secreting tumours .

21hydroxylase CAH is an autosomal recessive condition characterised by partial deficiency of 21 hydroxylase (occurring in around 1 in 15,000 births). It has been mapped to a defect on chromosome 6 .

A large proportion of these women may have polycystic ovaries on ultrasound, and like PCOS patients, LH maybe elevated. Because of the enzyme deficiency, there is a build up of 17-hydroxy progesterone and a deficiency of cortisol .

The excess progesterone is shunted and converted into adrenal androgens while the low cortisol stimulates ACTH secretion. ACTH further drives the above process .

Screening test is by measurement of follicular phase 17-hydroxy progesterone and the diagnosis established by demonstrating an exaggerated rise in 17-hydroxyprogesterone to synacthen (ACTH) .

Cushing's syndrome, the other important differential diagnosis can be excluded by performing an overnight dexamethasone suppression test. Appropriate suppression of endogenous cortisol production would rule out Cushing's syndrome.





No.: 110

A 19-year-old male with poorly controlled type 1 diabetes presents to casualty with an 8-hour history of vomiting. His blood tests are as follows :

Na+ 131 mmol/l, K+ 4.0 mmol/l, glucose 25 mmol/l, pH 7.10, bicarbonate 8 mmol/l. He is commenced on a constant infusion of insulin at 6 u/h after a bolus dose, is given normal saline and 4 hours later these are his repeat bloods :

Na+ 133 mmol/l, K+ 4 mmol/l, glucose 8 mmol/l, pH 7.15, bicarbonate 10 mmol/l .

Which 2 of the following are correct?

Options Choose 2

- A. Give 8.4% IV bicarbonate
- B. Switch infusion to 10% dextrose
- C. Reduce insulin infusion rate to 2 units/hour
- D. Give antibiotics
- E. Convert to sliding scale insulin
- F. Additional potassium is not required
- G. Potassium levels need to be checked every 12 hours
- H. Give 1.24% IV bicarbonate infusion
- I. Measure serum beta-hydroxybutyrate levels
- J. Continue insulin infusion at 6 units/hour.

No.: 110

B J

This is diabetic ketoacidosis, an endocrine emergency. The mortality rate is ~ 4%. The main problem remains at insulin deficiency, especially in the face of increased counter-regulatory hormones such as glucagon, cortisol, catecholamines and growth hormone. The mainstay of treatment is insulin and fluids .

Insulin is given primarily to suppress ketone body formation (that contributes to the acidosis) and not to lower glucose although the latter will occur. Thus in this young man, the fact that he remains acidotic means one should continue with a good constant dose of insulin e.g. 6units/hour. However to prevent him from becoming hypoglycaemic, 10% dextrose should be used as the fluid replacement .

Bicarbonate infusions should certainly not be considered if the pH is above 7, and below this figure, huge controversy exists as to whether it is beneficial .

Potassium deficit in DKA is massive and levels should be checked every 2 to 4 hours in the initial stages to ensure that the patients are not hypokalaemic. Serum measurement of beta-hydroxybutyrate will not be of any more use in this situation although a urinary ketone measurement 4 times a day is encouraged to monitor progress.



No.: 111



These Xrays of the right foot of a 36-year-old diabetic man were taken a year apart at clinic review (earlier image on left). Which of the following would you expect to find on examination?

Options

- A. An ulcer between the 4th and 5th toes
- B. An ulcer between the 2nd and 3rd toes
- C. Absent pedal pulses
- D. Pain at the metatarsophalangeal joint of the hallux
- E. Gas in the soft tissues

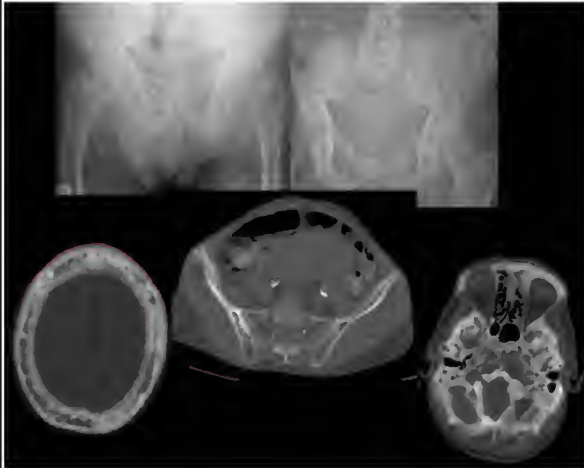
No.: 111

A

soft tissue density between the 4th and 5th toes in this man. There is erosion of the cortex along medial aspect of 1st phalanx and MTPJ of little toe, and lateral aspect of MTPJ of fourth toe. You would expect this patient to have a degree of peripheral diabetic neuropathy. Progression of neuropathy is reduced by good glycaemic control, so HbA1c should be aimed as close to target of 6.5% as possible, without causing symptomatic hypoglycaemia. The pathophysiology of diabetic neuropathy is that distal axonal loss occurs with focal demyelination. There are attempts at nerve regeneration, but there is chronic damage to the vasa nervorum with basement membrane thickening and endothelial dysfunction. Nerve conduction studies reveal that up to 80% of diabetic patients have some degree of nerve dysfunction. This patient should be managed with regular chiropody and specialist foot clinic review; they are at high risk of amputation.



No.: 112



The most likely diagnosis for this appearance in a 70-year-old man is :

Options

- A. Phenytoin treatment
- B. Lymphoma of bone
- C. Prostatic metastases
- D. Paget's disease
- E. Fibrous dysplasia

No.: 112

D

Expansion, coarsened trabeculae, inner table of skull affected, thickened iliopectineal line are consistent with Paget's disease of bone. Localised Paget's lesions are said to occur in some 3% of patients over 50 years of age. The disease is rare before 50 years and carries a male to female ratio of 2:1. Presentation is with skeletal pain, occasionally with bowing of long bones, skull enlargement with deafness in some patients, and thoracic kyphoscoliosis. Heart failure may occur as a result of chest and spine deformity or blood shunting. Pharmacological therapy includes use of bisphosphonates and NSAIDs for pain relief. Malignant transformation of lesions to osteosarcoma may occur in some patients (less than 1% of sufferers).





No.: 113

A 17-year-old man is referred for investigation of short stature. He has a previous diagnosis of slipped femoral epiphysis diagnosed at the age of 9. He presented with pain in the hip and a limp. This was treated nonsurgically by orthopaedic surgeons with containment of the femoral head in the acetabulum using casts. His younger brother aged 12 has recently been diagnosed with bilateral slipped femoral epiphyses .

There is nothing else of note in the family history and his progress at school is otherwise fine .

On examination he is on the 12th centile for height. His body mass index (BMI) is 32. He has normal pubertal development. His blood pressure is 114/68 mmHg and pulse of 90 beats per minute (bpm). No abnormalities are noted on examination of chest, heart and abdomen .

Investigations reveal :

Haemoglobin 13.2 g/dl

White cell count  $6.6 \times 10^9/l$

Platelets  $154 \times 10^9/l$

Serum sodium 134 mmol/l (133  $\blacklozenge$  144)

Serum potassium 4.1 mmol/l (3.5  $\blacklozenge$  5)

Serum urea 5.1 mmol/l (3  $\blacklozenge$  8)

Serum creatinine 88  $\blacklozenge$  mol/l (50  $\blacklozenge$  100)

Serum calcium 2.02 mmol/l (2.2  $\blacklozenge$  2.6)

Serum phosphate 1.9 mmol/l (0.8  $\blacklozenge$  1.4)

Parathyroid hormone (PTH) 16.4 pmol/l (3.5  $\blacklozenge$  5.5)

What is the likely diagnosis?

Options Choose 1

- A. Pseudo-pseudohypoparathyroidism
- B. Primary hypoadrenalism
- C. Pseudohypoparathyroidism
- D. Renal osteodystrophy
- E. Vitamin D resistant osteomalacia

No.: 113

C

Pseudohypoparathyroidism is a hypocalcaemic hyperphosphataemia syndrome in which parathyroid hormone (PTH) levels are high (hence pseudo). There is usually a characteristic phenotype of short stature, obesity and shortened 4th metacarpals. It is autosomal dominant and relates to a defect in the G-protein signalling pathway of the PTH receptor rendering the patients PTH resistant .

Pseudo-pseudohypoparathyroidism is the condition with the characteristic phenotype but normal calcium levels  $\blacklozenge$  it is often seen in the same families as pseudohypoparathyroidism.



No.: 114

A 29-year-old woman presents with a 4-month history of weight loss and general lethargy. She has a 12-year history of type 1 diabetes for which she is treated by basal bolus insulin regimen consisting of short-acting insulin thrice daily and long-acting insulin in the evenings. Along with her weight loss of 5 kg she has noticed more hypoglycaemic events and has had to reduce her insulin requirements from 60 units per day to 44 units per day. She takes no other medication other than the oral contraceptive pill. She is a non-smoker and denies use of any illicit substances .

On examination she has a body mass index (BMI) of 21.2 kg/m<sup>2</sup>. Her pulse is 68 beats per minute (bpm) and regular and her blood pressure is 104/60 mmHg. There are no specific abnormalities on examination of her chest, heart and abdomen but she has a slight purplish-yellow, non-tender 2 × 3 cm maculopapular rash on both shins .

Investigations reveal :

Urinalysis Normal

Haemoglobin 11.9 g/dl

White cell count 5 × 10<sup>9</sup>/l

Random glucose 9.6 mmol/l

HbA1c 6.8%

Plasma sodium 134 mmol/l (133–144)

Plasma potassium 4.8 mmol/l (3.5–5)

Plasma urea 5.9 mmol/l (3–8)

Which of the following investigations is the most appropriate next step in the management of this patient?

Options Choose 1

- A. Abdominal ultrasound scan
- B. Anti-endomysial antibodies
- C. Barium meal follow through
- D. Short synacthen test
- E. Thyroid function tests

No.: 114

Although this patient has not yet developed overt signs of hypoadrenalism, her symptoms and decreased insulin requirements are strongly suggestive of this. There is of course a well-recognised association between autoimmune destruction of the pancreatic islets and other endocrine tissues.







No.: 115

A 52-year-old male presents for annual review in the endocrine clinic. Five years ago he underwent successful surgical removal of a non-functioning pituitary tumour followed by cranial irradiation. Post-operative assessment at the time revealed partial hypopituitarism. He has remained well on hydrocortisone 10 mg bd and thyroxine 150 µg daily. Currently, he feels well apart from a decreased libido. Serial magnetic resonance imaging (MRI) scans have shown no recurrence of his pituitary tumour.

Recent blood tests reveal :

Random serum cortisol 804 nmol/l (120-600)

Free T4 19.9 nmol/l (9-23)

Thyroid stimulating hormone (TSH) <0.05 mu/l (0.5-5)

Luteinizing hormone (LH) 1.0 mu/l (1-10)

Follicle stimulating hormone (FSH) 0.6 mu/l (1-10)

Insulin-like growth factor-1 (IGF-1) 8.9 nmol/l (18-37)

A dual energy X-ray absorptiometry scan (DEXA) requested by SpR at last appointment reveals average T scores of -2.2 and -2.0 at his hip and spine, respectively.

What is the most appropriate therapeutic manoeuvre for this man?

Options Choose 1

- A. Add Alendronate
- B. Add growth hormone therapy
- C. Add testosterone therapy
- D. Reduce dose of hydrocortisone
- E. Encourage weight-bearing exercise

No.: 115

C

The patient is androgen deficient as evidenced by his decreased libido and low LH and FSH levels. He is osteopenic with T scores between -1 and -2.5 (a T score < -2.5 is osteoporotic). Androgen deficiency rather than glucocorticoid excess is the most likely cause of this, therefore androgen replacement therapy is the most appropriate treatment.





No.: 116

A 35-year-old woman presents with a 2-month history of weight loss and agitation. On examination she is noted to have a smooth goitre, a fine tremor of outstretched hand and a pulse of 104 beats per minute (bpm) .

Investigations reveal :

Free T4 48.3 nmol/l (9◆21)

Free T3 13.6 nmol/l (3◆5.5)

Thyroid stimulating hormone (TSH) less than 0.02 mu/l (0.4◆4.5)

Haemoglobin 13.6 g/dl

White cell count  $8.2 \times 10^9/l$  (4◆10)

Neutrophil count  $5.5 \times 10^9/l$  (2◆6)

She is commenced on carbimazole 40 mg daily and informed of the potential side effects of treatment. A further appointment is arranged in the OPD for 3 months. However, she re-presents three weeks later with a sore throat .

Investigations reveal :

Free T4 27.6 nmol/l

Free T3 7.9 nmol/l

TSH less than 0.02 mu/l

Haemoglobin 13 g/dl

White cell count  $5.6 \times 10^9/l$

Neutrophil count  $2.2 \times 10^9/l$

What is the most appropriate next step in this patient's management?

Options Choose 1

- A. Reassure , continue carbimazole
- B. Stop carbimazole
- C. Stop carbimazole and treat with G-CSF
- D. Stop carbimazole and treat radio-iodine
- E. Switch carbimazole to propylthiouracil

No.: 116

A Her WCC remains normal with no leukopenia, therefore her carbimazole is innocent and her sore throat is due to the much more likely cause of viral upper respiratory tract infection (URTI).





No.: 117

A 19-year-old woman presents with weight gain, worsening acne and depression 6 months into her first year at university. However, over the last 3 months she has become increasingly depressed. She finds class work difficult and has difficulty motivating herself to attend lectures and classes. She is also concerned that she has gained approximately 6 kg in weight over this time and has noted some problem with menstrual irregularity. On examination she had mild facial acne, a blood pressure of 136/88 mm Hg and had a blood mass index (BMI) of 32.1 kg/m<sup>2</sup>.

Investigations revealed :

Full blood count Normal

Glucose 5.6 mmol/l

Urea and electrolytes Normal

Oestradiol 100 pmol/l (>130)

Luteinizing hormone (LH) 8.8 (1–10)

Follicle-stimulating hormone (FSH) 4.4 (1–10)

What is the most appropriate next step in the management of this patient?

Options

- A. Computed tomography (CT) head scan
- B. Ovarian ultrasound
- C. Pregnancy test
- D. Refer for psychiatric opinion
- E. Urine free cortisol measurement

No.: 117

This patient likely has polycystic ovarian syndrome. Nevertheless, it is important to exclude Cushing's syndrome before making a diagnosis of polycystic ovarian syndrome (PCOS) as its implications if left untreated are much greater.



No.: 118

A 30-year-old female recently diagnosed with thyrotoxicosis presents with a sore throat. One month ago she commenced Carbimazole 40 mg daily plus propranolol 40 mg bd. She now reports a sore throat for several days. On examination, her pulse is 60 beats per minute regular and she has a moderate non-tender goitre. No other abnormalities are noted. Her investigations reveal :

Haemoglobin 12.8 g/dl  
 Platelets 250x10<sup>9</sup>/l  
 White cell count 3.8x10<sup>9</sup>/l  
 Neutrophils 1.4x10<sup>9</sup>/l  
 Lymphocytes 2x10<sup>9</sup>/l  
 Free T4 24.1 (NR 9-23)  
 Thyroid stimulating hormone (TSH) <0.05 (NR 0.5-4)

\*TSH receptor antibody positive .

What is the most appropriate treatment for this patient?

Options

- A. Add prednisolone therapy
- B. Continue Carbimazole
- C. Thyroidectomy
- D. Stop Carbimazole and treat with Radioactive Iodine
- E. Stop Carbimazole and change to Propylthiouracil

No.: 118

D

The patient has developed neutropenia on carbimazole and it must be stopped immediately. Whilst propylthiouracil (PTU) is unlikely to cause further bone marrow suppression, it has been described therefore radio-iodine is preferable.





No.: 119

A 68-year-old woman presents with a several month history of thirst, constipation, general malaise and lethargy. Ten years ago she was treated for breast carcinoma and underwent a left lumpectomy and lymph node sampling of which one node was found to contain malignant cells. Since the time of surgery she has been treated with Tamoxifen. She also takes Bendroflumethiazide 2.5 mg daily for a 3-year history of hypertension. Physical examination is unremarkable apart from a blood pressure of 158/94 mm Hg .

Her biochemistry is shown below :

Sodium 146 mmol/l (133  $\blacklozenge$  144)  
 Potassium 3.5 mmol/l (3.5  $\blacklozenge$  5.5)  
 Urea 10.2 mmol/l (3  $\blacklozenge$  8)  
 Creatinine 178 mmol/l (50  $\blacklozenge$  100)  
 Calcium 3.2 mmol/l (2.2  $\blacklozenge$  2.6)  
 Phosphate 0.90 micromol/l (0.7  $\blacklozenge$  1.2)  
 Parathyroid hormone test (PTH) 13 pmol/l (4  $\blacklozenge$  8)

What is the most likely cause of her hypercalcaemia?

Options Choose 1

- A. Drug induced
- B. Ectopic PTH secretion
- C. Metastatic bone disease
- D. Myeloma
- E. Primary hyperparathyroidism

No.: 119

E

Whilst the commonest cause of hypercalcaemia in such patients will be malignancy, her PTH should be suppressed, so with a high PTH this must be hyperparathyroidism. Some cancers do cause hypercalcaemia via secretion of PTH-related peptide, but this is not measured by standard PTH assays. Her hypokalaemia is secondary to her thiazide diuretic.



No.: 120

A 48-year-old male diabetic with a 3-year history of type 2 diabetes presents for annual review in the diabetic clinic. He is currently receiving Glibenclamide 5 mg daily, together with Lisinopril 20 mg daily and Amlodipine 5 mg daily for hypertension. On examination, he has a body mass index (BMI) of 33.6 kg/m<sup>2</sup>, a blood pressure of 128/82 mm Hg. He has some loss of vibration sensation on both feet and less than 5 dot haemorrhages in each eye.

Investigations reveal :

Hb1Ac 9.8% (NR < 6)

Total cholesterol 5.4 mmol/l

Triglycerides 2.4 mmol/l

Urinalysis negative

What is the most appropriate treatment for this patient's hyperglycaemia?

Options Choose 1

- A. Add Insulin
- B. Add Metformin
- C. Add Pioglitazone
- D. Increase dose of Glibenclamide
- E. Stop Glibenclamide and treat with Metformin

No.: 120

B

Metformin is the treatment of choice for obese type 2 diabetics. You should not add insulin to an oral hypoglycaemic agent and simply replacing Glibenclamide with Metformin is unlikely to significantly reduce his HbA1c. Glitazones are only recommended (by NICE) when a patient is intolerant to the combination of oral hypoglycaemic agents (OHA) and Metformin, when a glitazone may be used as a substitute for one of the oral drugs.





No.: 121

A 50-year-old male presents for diabetic annual review. He is generally well and receiving metformin 500 mg tds. On examination, he has a BMI of 32; he has a blood pressure of 144/88 mmHg and has a slight reduction to sensation in his feet to pinprick. There is no evidence of any retinopathy .

Investigations show :

Serum sodium 136 mmol/L  
 Serum potassium 4.0 mmol/L  
 Serum urea 6.5 mmol/L  
 Serum creatinine 85 umol/L  
 Total cholesterol 6.8 mmol/L  
 HDL cholesterol 1.1 mmol/l  
 Triglycerides 2.1 mmol/L  
 HbA1c 9.2%  
 Fasting glucose 9.8 mmol/L

What is the most appropriate treatment for this patient's dyslipidaemia?

Options Choose 1

- A. Diet
- B. Ezetimibe therapy
- C. Fibrate therapy
- D. Insulin therapy
- E. Statin therapy

No.: 121

**E** With significantly elevated total cholesterol statin therapy is by far the best option for this man. A fibrate would be more appropriate, if his total cholesterol was less elevated with a low HDL cholesterol level. He clearly also needs attention paid to his BP and diabetic control.





No.: 122

A 22-year-old female of Bangladeshi origin presents with weight loss and fatigue of approximately three months duration. She arrived back in the UK 3 months ago after spending one year in Bangladesh and returned due to ill health. She has otherwise been quite well with no other past medical history and has two children .

On examination she is thin with a BMI of 20 kg/m. Her pulse of 77bpm and a blood pressure of 94/62 mmHg. No

other abnormalities are evident on examination .

Investigations show :

Haemoglobin 10.9 g/dL

MCV 76 fl

White cell count  $8 \times 10^9/L$

Serum sodium 131 mmol/L

Serum potassium 5.1 mmol/L

Serum urea 8.0 mmol/l

Serum creatinine 110 umol/L

Plasma glucose 4 mmol/L

ESR (Westergren) 64 mm/1sthr

9am plasma cortisol 100 nmol/L (NR 200 - 550)

What would be the best investigation to establish the diagnosis in this patient?

Options Choose 1

A. CT abdomen

B. CT pituitary

C. CT thorax

D. PA Chest X-ray

E. Radiolabelled white cell scan

No.: 122

A

This woman is likely to have hypoadrenalism secondary to adrenal TB. A Ct of the pituitary will therefore be unhelpful, whilst imaging of her chest is important it won't clinch the diagnosis.





No.: 123

A 30-year-old male is referred with hypertension and sweats of approximately 6 months duration. He is adopted and does not know his birth parents. He does not smoke but drinks 30 units of alcohol per week. His GP has prescribed bendroflumethiazide 2.5 mg/d and Ramipril 7.5mg per day. His blood pressure on examination was 186/100 mmHg and he has a BMI of 25.2kg/m<sup>2</sup>.

Further investigations showed :

Urine free metadrenaline 16 umol/24 hr (NR < 5)  
Fasting plasma calcitonin 90 ng/L (NR 0 - 11.5)

MRI scan of the abdomen revealed a 3.5 cm mass in the right adrenal gland .

Based upon this information, what other diagnosis is likely to be associated with his condition?

Options Choose 1

- A. Acoustic neuroma
- B. Gastrinoma
- C. Hyperparathyroidism
- D. Insulinoma
- E. Prolactinoma

No.: 123

C

This man has phaeochromocytoma with a very high urinary metadrenaline level. The high calcitonin level is strongly suggestive of associated medullary carcinoma of the thyroid making the diagnosis MEN 2. Hyperparathyroidism is a feature of MEN2A. Insulinoma, Gastrinoma and Prolactinoma are all features of MEN1. Acoustic neuroma is not part of the MEN syndromes.





No.: 124

A 17-year-old female presents with a 6 month history of secondary amenorrhoea. She has been otherwise well apart from slight galactorrhoea. Her menarche was at age 11 and had regular periods up to 6 months ago. She has been sexually active for approximately one year but does not regularly use any form of contraception. She smokes five cigarettes daily and occasionally smokes cannabis. On examination she appears well, has a pulse of 70bpm and a blood pressure of 100/65mmHg .

Investigations show :

Serum oestradiol 140nmol/l (NR 130-600)

Serum LH 4.0mU/l (NR 2-20)

Serum FSH 2.1mU/l (NR 2-20)

Serum prolactin 6930mU/l (NR 50-450)

Free T4 7.4pmol/l (NR 9-22)

TSH 2.3mU/l (NR 0.5-5.0)

What is the most likely cause of her hyperprolactinaemia:

Options Choose 1

- A. Drug induced
- B. Non-functional pituitary tumour
- C. Polycystic ovarian syndrome
- D. Pregnancy
- E. Prolactinoma

No.: 124

Only a prolactin-secreting tumour can really cause such elevated levels of prolactin, although A,B and D should all be on the differential list.





No.: 125

A 54-year-woman presents with palpitations and slight weight loss. She has no past medical history of note. She is a non smoker and drinks little alcohol. Her mother had an underactive thyroid. On examination she has a pulse of 96 beats per minute and a blood pressure of 130/82mmHg. She has a fine tremor of the outstretched hands. Inspection of her eyes reveals lid lag but no exophthalmos. No goitre is palpable .

Thyroid function tests reveal :  
 Free T4 30.1nmol/l (NR 10 - 23)  
 Free T3 5.4nmol/l (NR 3.5 - 5.5)  
 TSH < 0.02 mu/L (NR 0.5 - 5.0)

What is the most likely diagnosis:

Options Choose 1

- A. Dysthyroglobinemia
- B. Graves disease
- C. Hashitoxicosis
- D. Factitious thyrotoxicosis
- E. Toxic nodule

No.: 125

While Grave's is the most common cause of hyperthyroidism overall it produces a goitre, therefore in the absence of a goitre toxic adenoma is the next most likely cause.





No.: 1



No.: 1

A



No.: 2



No.: 2

B







No.: 3

A 28 year woman presented with breathless and increasing lethargy, and a week's history of aching of her elbows and hands. She was pyrexial, temperature 38.5 centigrade. Her right elbow was tender and hot. There was reduced air entry at the right lung base, and an associated pleural rub.

FBC Hb 9.9; MCV 99; WCC 3.7; Neuts 3.0; Plt 305; ESR 50

Biochem Na 140; K 4.2; urea 11.0; creat 115; bili 55; alk phos 80; ALT 30; total calc 2.3; CRP 4

CXR Blunting of the right costophrenic angle

MSU dipstick Blood + protein

The most likely diagnosis is :

Options

A. Malaria

B. SLE

C. Wegeners granulomatosis

D. HIV seroconversion illness

E. Polyarteritis nodosa

No.: 3

B

Changes in CRP

Little / no change 4-100

- ☐ Most viral
- ☐ Active SLE
- ☐ Scleroderma/CREST
- ☐ Inactive RA
- ☐ Most tumours

Moderate increase 100-200

- ☐ EBV /CMV
- ☐ Bacterial infection
- ☐ Active RA
- ☐ Temporal arteritis / PMR
- ☐ Lymphoma / hypernephroma

Large elevation >200

- ☐ Severe bacterial sepsis
- ☐ Legionella
- ☐ Active vasculitis

Autoantibodies

ANA. All of them in lupus Non-specific

Homogeneous SLE/ drug induced

Coarse speckled MCTD

Fine speckled Sjogrens

Nucleolar SS/ polymyositis

Ds DNA more specific - Rising titres may herald relapse

Ro /La .if ANA negative; seen in Sjogrens

West Indian lupus Sm +

Ribosomal P antibodies a marker for neuropsychiatric lupus

Anti Scl70 scleroderma

Anti-centromere CREST

Anti Jo1- Polymyositis / dermatomyositis (particularly resp involvement)

AMA specific and sensitive for PBC do M2 ELISA

ASA chronic autoimmune hepatitis

Anti gliadin (IgA) and antiendomysial ab Coeliac disease

P ANCA non specific; vasculitides, IBD

C ANCA specific for Wegeners granulomatosis



No.: 4

A 16-year-old girl presented with 7 days of bloody diarrhoea two weeks ago and ankle swelling over the subsequent two weeks. Her only other history was of menorrhagia, and back pain for which she took non-steroidals. She was having difficulty passing urine .

FBC :

Hb 8.9

WCC 14.0

Neuts 10

Pl 27

PT 12

APTT 34

Fib 4

Biochem :

Na 138

K 6.0

Urea 30

Creat 370

alb 29

Dipstick urine: Blood ++ protein +

The likely cause of her renal impairment is :

Options

A. Analgesic nephropathy

B. IgA nephropathy

C. Henoch Sch $\diamond$ nlein purpura

D. Post streptococcal glomerulonephritis

E. Haemolytic uraemic syndrome

No.: 4

E

Haemolytic uraemic syndrome/Thrombotic thrombocytopenic purpura

Aetiology :

\*Infections  $\diamond$  E. coli (O157:H7), shigella, HIV, pneumococcus

\*Drugs  $\diamond$  quinine, ticlopidine, clopidogrel, mitomycin C, cyclosporin, COCP

\*Pregnancy/post partum

\*Autoimmune  $\diamond$  SLE, scleroderma, antiphospholipid syndrome

\*Conditioning for bone marrow transplantation

\*NOTE  $\diamond$  Von Willebrand's factor cleaving protease deficiency (or an IgG inhibitor to this) in significant proportion of those with TTP .

\*Factor H (factor I) deficiency/polymorphisms associated with HUS

Clinical features :

\*Microangiopathic haemolytic anaemia

\*Thrombocytopenia (but normal clotting)

\*Acute renal failure

\*Neurological abnormalities

\*Fever

\*Hypocomplementaemia (in about 50%)

Differential diagnosis :

\*Malignant hypertension

\*Preeclampsia

\*Vasculitis

\*DIC

Treatment :

\*Plasma exchange with FFP

\* Treat cause

No.: 5



No.: 5

B





No.: 6

A 55-year-old Asian lady was seen by her GP. She had been finding it difficult to stand from a chair. She was new to the practice, having moved to Britain recently. She had been told that she had diabetes ten years ago and took gliclazide 80 mg once a day. She had had no recent diabetes check ups. A medical report from 1997 showed a creatinine of 112. She gave a history of angina on exertion, for which she took an aspirin a day and GTN. She had felt her vision had deteriorated recently. She had been in hospital in India with malaria five years previously, which had been treated with iv quinine. On examination she was obese, with bilateral corneal arcus. There was evidence of proliferative retinopathy and a small haemorrhage in her right eye. Her BM was 16. Her blood pressure was 170/85, with no postural drop. Her apex was displaced but heart sounds were otherwise normal. Her abdomen was soft and she had no evidence of bruits. She had evidence of peripheral oedema. She had some proximal weakness of her muscles and peripheral loss of vibration and fine touch in her feet .

Hb 9.1 MCV 90 WCC 10 Pl 400 ESR 3  
Na 140, K 5.6, Ur 14, Cr 205, HCO<sub>3</sub> 19, Calc 2.25,  
Phos 1.4 +  
Bil 15, Alk phos 90  
Urine dipstick glucose +, protein +  
CXR Cardiomegaly  
ECG Inferior Q waves  
Ultrasound abdomen Kidneys both measure 12 cm  
24hour urinary protein 1.8 g/24 hrs

The most likely cause of her renal failure is?

Options Choose 1

- A. Diabetic nephropathy
- B. Renal artery stenosis
- C. Osteomalacia
- D. Amyloidosis
- E. Glomerulonephritis secondary to malaria
- F. Hypertensive nephropathy

No.: 6

A

Type II DM is now by far the most common cause of newly diagnosed end-stage renal failure. An elevated GFR is often the first sign, followed by microalbuminuria. Classical histological changes are mesangial expansion, GBM thickening and glomerulosclerosis, which may be focal (Kimmelstiel-Wilson) or diffuse. Microalbuminuria is defined as 30-300 mg/day or 20-200 mg/min of proteinuria and is not detected on dipstick. Measured best by 24-hour collections but albumin:creatinine ratio is a good surrogate if taken in the morning. It is an independent risk factor for cardiovascular disease and overall mortality as well as for overt proteinuria (>300mg/day) and nephropathy .

Trials

UKPDS (Lancet and BMJ) ♦ many trials ♦ showed that patients with systolic BP <120 mmHg still had beneficial effects in terms of diabetic complications and that treatment to at least below 144/82 was of benefit. It also showed for the first time that glycaemic control reduces microvascular complications including overt proteinuria but NOT macrovascular complications. (Similar to DCCT trial for type I DM) .

Three trials in NEJM (9/2001) showed that ARB ♦s reduced development and progression of nephropathy in type II DM independent of BP effects but did not have an effect on cardiovascular morbidity. The data is not so good for ACE inhibitors in type II DM unlike type I where it is very convincing even for ♦normotensive♦ patients and may cause regression of overt nephropathy. The HOPE and MICROHOPE substudy showed that ramipril (compared with placebo) in type II DM reduced cardiovascular outcomes and albuminuria .

CALM trial (BMJ 2000) showed that the addition of an ACEI to an ARB had additive effects in reducing blood pressure and albuminuria.





No.: 7

An 64-year-old gentleman had a GCS of 11/15, and a dense right hemiparesis and was dehydrated .

Na 147

K 7.9

Urea 19

Creat 540

Calcium (total) 1.68

Phosphate 2.8

Bili 11

Alk phos 164

Albumin 37

Glu 16

Urine +++Blood +protein

The most likely cause of his biochemistry is :

Options

A. HONK

B. Acute Pyelonephritis

C. Chronic renal failure and renal bone disease

D. Rhabdomyolysis

E. Chronic Pyelonephritis

No.: 7

D

Rhabdomyolysis:

Aetiology :

Trauma, crush injury

Extreme exertion

Heat stroke

Status epilepticus

Metabolic myopathies

Mitochondrial myopathies

Malignant hyperthermia (ryanodine receptor gene mutations)

Neuroleptic Malignant Syndrome

Drugs- alcohol

Amphetamines

Heroin

Statins/fibrates

Carbon monoxide poisoning

Infection ♦ mainly viral

Influenza, parainfluenza, coxsackie, EBV, HIV, CMV

Electrolyte ♦ hypokalaemia, hypophosphataemia mainly

Endocrine ♦ hypothyroidism, DKA, phaeochromocytoma

Clinical Features :

Red/brown urine (positive dipstick for blood but no RBC ♦s), myoglobinuria .

Acute renal failure associated with severe hyperkalaemia, hyperphosphataemia and hypocalcaemia and acidosis .

Management :

Large volume of IV fluids using some sodium bicarbonate to alkalinise urine to pH>8

Treat hyperkalaemia. Treat the cause .

If fluid overloaded, dangerously hyperkalaemic, or anuric then renal replacement therapy is necessary .

Do NOT treat hypocalcaemia unless seizures as it recovers spontaneously and treatment causes ectopic calcification.





No.: 8

During investigation of a 55-year-old Indian woman with back pain and 1.3g/24 hours of proteinuria the following results were obtained .

Na 136  
K 3.3  
HCO<sub>3</sub> 18  
Cl 111  
Ca 2.2  
PO<sub>4</sub> 0.5  
Creat 80  
Magnesium 0.9  
Glucose 4.6  
ESR 65

Urine dip  
Glucose ++  
Protein +  
Blood -

What is the most likely cause for the metabolic abnormalities?

Options

- A. Chronic interstitial nephritis
- B. Gittleman ♦s syndrome
- C. Type II renal tubular acidosis
- D. Type I renal tubular acidosis
- E. Bartter ♦s syndrome

No.: 8

C

Anion gap = Na + (K) ♦ (Cl + HCO<sub>3</sub>)

Metabolic acidosis with a raised anion gap

L - Lactic acidosis

\* Type A - Shock, sepsis, poisoning

\* Type B - metformin, enzyme defects (PDH), haematological malignancies

D - lactic acidosis - fermentation of glucose by gut bacteria in the blind loop syndrome

Renal failure - uraemic acids

Ketoacidosis - DM, alcohol, starvation

Exogenous acids - salicylates, methanol, ethylene glycol

Normal anion gap metabolic acidosis

1) GI HCO<sub>3</sub> loss - diarrhoea, ileostomy, ureterosigmoidostomy

2) Renal HCO<sub>3</sub> loss - acetazolamide, prox RTA, hyperparathyroidism

3) Less renal H excretion - RTA 1/IV

4) Increased HCl production - NH<sub>4</sub>Cl ingestion

Renal role in acid-base balance - To help maintain acid-base balance, the kidneys reabsorb filtered bicarbonate and excrete the daily acid load derived principally from the metabolism of sulphur-containing amino acids.

Reabsorption of bicarbonate - Reabsorption of filtered bicarbonate predominantly occurs in the proximal tubules primarily by Na-H exchange. Approximately 85 to 90 percent of the filtered load is reabsorbed proximally. By comparison, 10 percent is reabsorbed in the distal nephron primarily via hydrogen secretion by a proton pump.

Type II (Proximal) RTA originates from the inability to reabsorb bicarbonate normally in the proximal tubule. This disturbance leads to an increase in delivery of bicarbonate to the distal nephron. Since the distal tubule is initially overwhelmed, bicarbonate leaks into the final urine, leading to a metabolic acidosis.

Excretion of hydrogen ions - Occurs in the distal tubule either directly or via ammonia synthesis and excretion. Type I RTA is due to inability of the distal tubules to excrete hydrogen ions.

	Type I	Type II	Type IV
Defect	Impaired distal acidification	Reduced proximal bicarbonate reabsorption	Decreased aldosterone secretion or effect
Plasma bicarbonate	<10	12-20	>17
Plasma potassium	Low (mostly)	Low	High
Urine pH	>5.3 always	>5.3 with alkali load	<5.3 (mostly)
Others	Osteoporosis, nephrocalcinosis, renal stones, poor growth	Osteomalacia, poor growth	Very common

Fanconi ♦s syndrome is the term used when there is a generalised proximal tubular defect associated with proximal RTA. The proximal tubule reabsorbs the majority of glucose, phosphate, amino acids and urate. Therefore, there is renal glycosuria (also caused by pregnancy), hyperphosphaturia (leads to osteomalacia), hypouricaemia and aminoaciduria.

#### Aetiology

Type I	Type II	Type IV
Primary familial - AD/AR, Secondary hypercalciuria, Sj ♦gren ♦s syndrome, rheumatoid arthritis, SLE, hyperglobulinaemia, cirrhosis, sickle cell disease, obstructive uropathy, renal transplantation, ifosfamide, amphotericin, BLithium	Primary idiopathic, sporadic, cystinosis, tyrosinaemia, hereditary fructose intolerance, galactosaemia, type I glycogen storage, dis Wilson ♦s Lowe ♦s syndrome, acquired multiple myeloma, ifosfomide acetazolamide, amyloidosis, heavy metals, vit D deficiency, renal transplantation, PNH	Aldosterone deficiency, primary Addison ♦s, CAH heparin, hyporeninaemic, hypoaldosteronism, diabetes, ACE, INSAIDs, cyclosporin, HIV, acute glomerulonephritis, obstructive uropathy, aldosterone resistance, amiloride, spironolactone, triamterene, trimethoprim, Pentamidine, tubulointerstitial disease, pseudohypoaldosteronism

#### Treatment:

\* Type I - NaHCO<sub>3</sub> or sodium or potassium citrate - small doses needed to prevent complications and maintain growth.

\* Type II - large doses of above treatments needed - care as hypokalaemia can be exacerbated.

\* Type IV - little needed - care with hyperkalaemia. Sometimes loop or thiazides diuretics. Fludrocortisone for primary adrenal insufficiency.

No.: 9

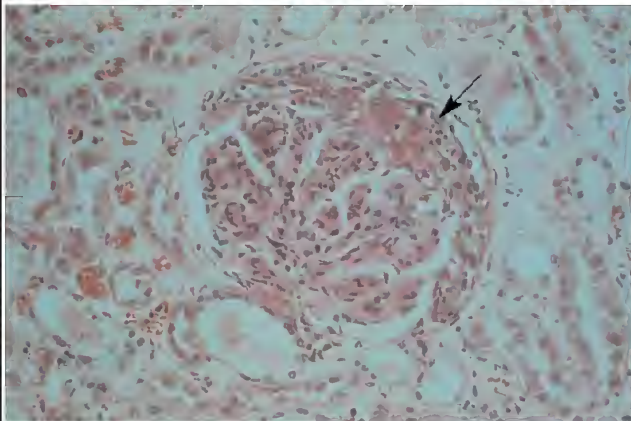


No.: 9

D



No.: 10



This renal biopsy specimen comes from an acutely unwell patient with respiratory and renal failure. Subsequent immunofluorescence on the same specimen demonstrated linear IgG deposition .

What is the most likely diagnosis?

Options

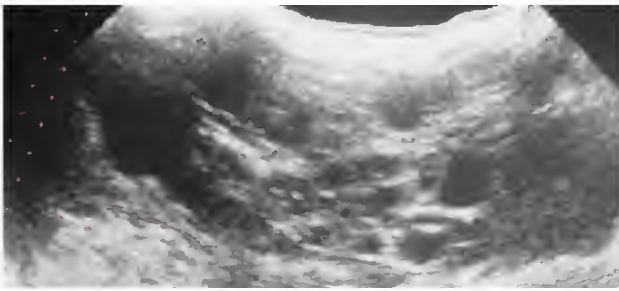
- A. Wegener's Granulomatosis
- B. Goodpasture's Disease (Anti-GBM disease)
- C. Severe Acute Respiratory Syndrome
- D. Lupus nephritis
- E. Legionnaire's Disease

No.: 10

B

The renal biopsy shows crescentic glomerulonephritis. With acute respiratory and renal failure the most likely answer is therefore Goodpastures Disease. Wegener's may cause the same clinical picture with crescentic GN but there would be no immunoglobulin deposition, lupus would be unlikely to cause respiratory failure, SARS does not routinely lead to renal failure and Legionnaire's Disease would not cause crescentic GN.

No.: 11



This ultrasound scan was done on a young man with hypertension. What is the diagnosis?

Options

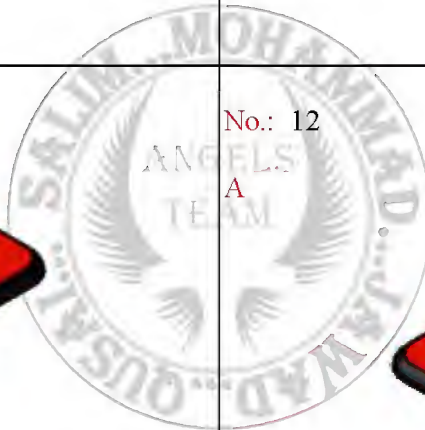
- A. Conn's syndrome
- B. Pheochromocytoma
- C. Renal Artery Stenosis
- D. Essential hypertension
- E. Adult Polycystic Kidney Disease

No.: 11

E

Ultrasound scan of a polycystic kidney, showing an enlarged kidney with many cysts of varying size.

No.: 12



No.: 12

A







No.: 13

A 60-year-old lady with a long history of rheumatoid arthritis presents with increased ankle swelling and shortness of breath. She has previously been treated with gold injections and taken courses of prednisolone. She also takes occasional ibuprofen for analgesia.

On examination there were features of rheumatoid arthritis. Cardiovascular examination was normal. There were a few bibasal crackles and pitting oedema to the thighs. Abdominal examination revealed hepatosplenomegaly.

Blood tests showed :

Na 142 meq/dl  
Alb 22 gm/dl  
Hb 10.2 gm  
K 4.2 meq  
Co Ca 2.30 meq  
WCC 8.3  
Ur 11.3 mmol  
plt 130  
Cr 180 mmol  
HCO<sub>3</sub> 20 meq

Urine dipstix :  
Blood Negative  
Protein 3 +

Renal ultrasound :  
Rt Kidney 11cm  
Lt Kidney 12cm  
No Hydronephrosis

The unifying diagnosis is :

Options

- A. Felty's syndrome
- B. Membranous nephropathy secondary to gold
- C. Analgesic nephropathy
- D. Amyloidosis
- E. IgA nephropathy

No.: 13

D

Amyloidosis :

Amyloidosis is not a single disease but a general term related to a group of disorders characterized by the extracellular deposition of protein in a unique fibrillar form. Amyloidosis divided into two types :

(1AA Amyloid (Reactive))

\*Derives from the acute phase reactant serum amyloid A protein (SAP).

\*Associated with long standing inflammatory and infective conditions such as rheumatoid arthritis, juvenile chronic arthritis, chronic pyogenic infections (empyemas, bronchiectasis), inflammatory bowel disease and familial fevers.

Clinically can cause :

- \*Renal involvement ♦ nephritic syndrome and renal failure
- \*Peripheral neuropathy and carpal tunnel syndrome
- \*Hepatosplenomegaly

(Cardiac involvement is rare, very rare to cause heart failure in contrast to AL, and no macroglossia).

(2AL Amyloid (Primary))

\*Fibrils derived from the light chains of immunoglobulins and can complicate most clonal B cell diseases such as multiple myeloma.

Clinically causes :

- \*Macroglossia
- \*Renal - nephritic syndrome, renal failure
- \*Congestive heart failure
- \*Autonomic and sensory neuropathy

Diagnosis :

- \*Rectal Biopsy or other organ biopsy (renal)
- \*Apple green birefringence on polarized light following congo red staining
- \*SAP scan (Scintigraphy of radioiodinated serum amyloid P component)
- \*Raised ESR with normal CRP

Treatment :

\*Treat underlying disease either with immunosuppression or treating any infective focus vigorously. Prognosis is generally poor, but the disease can regress with early aggressive treatment in some.

Dialysis amyloid :

Beta 2 microglobulin deposition. Usually excreted by the kidneys, but not dialysed out therefore a complication in long-term dialysis patients. Deposition tends to be around joints causing arthritis, periarticular causing carpal tunnel syndrome and bones causing bone cysts.

Renal complications of rheumatoid arthritis :

- \*Membranoproliferative glomerulonephritis
- \*Renal vasculitis
- \*Membranous nephropathy secondary to
  - amyloidosis
  - gold
  - penicillamine
- \* Analgesia nephropathy





No.: 14

A 70-year-old man presents with general malaise and back pain. On examination he has pitting oedema to the mid calf. Abdomen is soft and non-tender with no masses .

Blood tests showed :

Na 144 meq

K 5.3 meq

Ur 50 mmol

Cr 967 mmol

Alb 30 gm

TP 96 gm

Hb 9.6 gm

Co Ca 2.9 meq

Renal ultrasound shows 2 normal sized kidneys .

Urine dipstix is positive for protein .

The most likely diagnosis is :

Options

A. Primary hyperparathyroidism

B. Tertiary hyperparathyroidism

C. Multiple myeloma

D. Retroperitoneal fibrosis

E. Obstructive uropathy secondary to metastatic Ca prostate

No.: 14

C





No.: 15

A 58-year-old man presented urgently to out patients for investigation of renal failure and hypertension. He had been suffering from back pain for the preceding 6 months .

On examination he was hypertensive with a blood pressure of 150/90. Abdominal examination was normal .

Blood tests showed :

Na 140 meq

K 5.2 meq

Urea 20 mmol

Creat 280 mmol

ESR 96 mm

WCC 9.3

CRP 10 units

PSA 1.2 meq

HB 10.2 gm

Plt 230

Renal ultrasound showed bilateral hydronephrosis .

Urine dipstix was negative for protein but had 1+ blood .

Urine cytology was negative .

The most likely diagnosis is :

Options

A. Obstructive uropathy secondary to Ca bladder

B. Urethral stricture

C. Retroperitoneal fibrosis

D. Abdominal aortic aneurysm

E. Ca prostate with retroperitoneal infiltration

No.: 15

C

This is an autoimmune periaortitis. The lower and mid thirds of the ureters become obstructed. Presentation is with flank and abdominal pain or as an incidental finding on investigation of renal function .

\*M:F=3:1

\*Peak age 50-70 years

\*Raised ESR with normochromic normocytic anaemia is common .

\*IVU or retrograde contrast studies may show characteristic medial deviation of the ureters .

\*MRI or CT

Treatment :

\*Steroids

\*Ureteric stenting or ureterolysis

Disease can be triggered by methysergide, beta blockers and methyl dopa.

No.: 16





No.: 16

D







<p>No.: 17</p> <p>A 25-year-old developed frank haematuria a day following the development of a sore throat. His blood pressure was 150/90. Urinalysis showed blood 2+ and protein 2 .+</p> <p>The most likely diagnosis is :</p> <p>Options</p> <p>A. Microscopic polyangitis B. Nephrolithiasis C. IgA nephropathy D. Post streptococcal glomerulonephritis E. HUS</p>	<p>No.: 17</p> <p>C</p> <p>Renal complications following URTI .</p> <p>IgA nephropathy : Typically presents in young men with recurrent haematuria following an upper respiratory .</p> <p>Acute post streptococcal glomerulonephritis : Complication of streptococcal pharyngitis: Latent period of 1-2 weeks between the onset of sore throat and symptoms of acute GMN - oedema, haematuria, and hypertension.</p>
<p>No.: 18</p> <p>A 68-year-old man who is a diet controlled diabetic, who has been suffering from pains in his legs on exertion is seen in the out patients clinic due to impaired renal function. He is found to be hypertensive with a BP of 170/100. Fundoscopy shows a few exudates .</p> <p>Bloods show : Na 142 K 5.6 Urea 14 Cr 180</p> <p>Renal ultrasound shows : Right kidney 9.3cm Left kidney 7.2cm</p> <p>What is the cause of his renal failure?</p> <p>Options</p> <p>A. Hypertensive nephrosclerosis B. Diabetic nephropathy C. Accelerated hypertension D. Atheromatous embolic disease E. Renovascular disease</p>	<p>No.: 18</p> <p>E</p> <p>Diabetic nephropathy : *Hypertension and poor diabetic control contribute to the development of diabetic nephropathy . *It is important to look at diabetic clinic reports - progression is usually monitored by proteinuria, which increases slowly over several years. Sudden onset renal failure or nephritic range proteinuria suggests another diagnosis. Also important to look for other diabetic complications, renal complications are rare in those without retinopathy or neuropathy .</p> <p>Renovascular disease : * An important diagnosis to remember especially in those with diabetes, who often have vascular disease. It is important to look for risk factors (angina, claudication, TIA/CVA, smoking) and bruits on examination. Asymmetrical kidneys may be a clue on ultrasound - further investigation preferably initially by MRA (no risk of contrast nephropathy), or angiogram. Screening by renogram (nuclear medicine) but not sensitive.</p>

<p>No.: 19</p> 	<p>No.: 19</p> <p>A</p> 
<p>No.: 20</p> <p>A 23-year-old lady with focal segmental glomerulosclerosis (FSGS) was seen 3 weeks post-cadaveric renal transplant with the following results :</p> <p>Na 140 Cl 124 K 6.8 HCO<sub>3</sub> 13 Ur 12 Creat 175 Mg 0.4</p> <p>The most likely cause for the impaired graft function is :</p> <p>Options</p> <p>A. Recurrent FSGS B. Azathioprine toxicity C. Acute cellular rejection D. CMV infection E. Cyclosporin toxicity</p>	<p>No.: 20</p> <p>E</p> <p>Immunosuppression in transplantation and side effects :</p> <p>*Cyclosporin - Nephrotoxic, neurotoxic (tremor, seizures), hirsutism, gingival hyperplasia, hypertension, hyperlipidaemia, glucose intolerance</p> <p>*Tacrolimus (FK506) - Nephrotoxic, neurotoxic, glucose intolerance</p> <p>*Rapamycin - Hyperlipidaemia, bone marrow suppression, impaired wound healing, lung injury (BOOP) improves with drug withdrawal</p> <p>*Azathioprine - Bone marrow suppression, gi side effects</p> <p>* Mycophenolate Mofetil (MMF) - Bone marrow suppression and gi effects.</p>





<p>No.: 21</p> <p>A 32-year-old man with end stage renal failure secondary to IgA nephropathy was dialysed for 18 months before receiving a renal transplant from a live related donor. He received immunosuppression with prednisolone, azathioprine and cyclosporin. He had one episode of acute rejection, which was treated with CTG. At 6 months post transplant he had a serum creatinine of 150. At 12 months the creatinine had climbed to 205, and he had become hypertensive. Transplant ultrasound scan was normal. Urine was sent for microscopy and showed decoy cells .</p> <p>In view of this result, possible diagnosis is :</p> <p>Options</p> <p>A. Transplant artery stenosis B. Chronic allograft nephropathy C. CMV infection D. Acute rejection E. BK nephropathy</p>	<p>No.: 21</p> <p>E</p> <p>New complication (1995) associated with the increased use of FK506 and MMF (only occurs in those on immunosuppression). Suspect for graft dysfunction after 6-18/12-post transplant. Classically decoy cells in the urine (infected renal tubular epithelial cells), renal biopsy shows viral inclusion bodies, BK viral DNA can be detected in the plasma (100% sensitivity). Unfavourable outcome - likely to cause graft dysfunction and loss. No successful treatment.</p>
<p>No.: 22</p> <p>A 28-year-old presented to medical admissions with pleuritic chest pain. He had also been admitted for suffering from ankle and knee pain over the preceding 3 years. He was febrile and had mild ankle oedema .</p> <p>Blood results showed :</p> <p>Creat 66 WCC 13 ESR 60 CRP 150</p> <p>CXR was normal Urinalysis - protein 3 +</p> <p>The most likely cause of the proteinuria is :</p> <p>Options</p> <p>A. Membrano-proliferative glomerulonephritis B. IgA nephropathy C. AA amyloidosis D. Collapsing FSGS E. Membranous nephropathy</p>	<p>No.: 22</p> <p>C</p> <p>Familial Mediterranean fever : Autosomal recessive condition classically affecting those of Mediterranean origin, presenting in their twenties with recurrent episodes of fever, serositis and arthralgia. The main complication is AA amyloidosis.</p>

<p>No.: 23</p> 	<p>No.: 23</p> <p>B</p> 
<p>No.: 24</p> <p>A 31-year-old man presented with a 3-week history of haemoptysis and red urine. He had a similar episode 3 years ago from which he made a good recovery .</p> <p>Bloods showed :</p> <p>Na 138 K 6.7 Urea 41 Creat 654 Hb 7.9 WCC 12 plts 482</p> <p>Urine :</p> <p>Blood 3 + Protein 3 +</p> <p>The most likely diagnosis is :</p> <p>Options</p> <p>A. Goodpasture's syndrome B. Microscopic polyangiitis C. SLE D. PAN E. Churg-Strauss</p>	<p>No.: 24</p> <p>B</p> <p>Pulmonary renal syndromes :</p> <ul style="list-style-type: none"> <li>*Wegener's granulomatosis</li> <li>*Microscopic polyangiitis</li> <li>*Antiglomerular basement membrane disease</li> </ul> <p>)Severe pneumonic illness can also cause ARF due to profound sepsis or infection related interstitial nephritis e.g. Legionnaires disease) .</p> <p>Antiglomerular basement membrane disease (Goodpasture's) :</p> <p>Autoantibodies to type IV collagen in the glomerular basement membrane and alveoli. Mainly occurs in white males. Usually presents with lung haemorrhage. Tends to occur only once as a one hit condition and is unlikely to relapse .</p> <p>Treatment is by plasma exchange and immunosuppression (cyclophosphamide and prednisolone then azathioprine and prednisolone). Untreated patients mostly die. 80-90% recover renal function with treatment.</p>



No.: 25

A 23-year-old man presents feeling generally unwell with malaise and fever. He has recently had a diarrhoeal illness .

Blood tests showed the following results :

Na 136

K 3.4

Ur 15

Creat 360

Hb 7.6

WCC 14

plt 50

The most likely diagnosis is :

Options

A. HUS

B. TTP

C. HSP

D. Endocarditis

E. HIV nephropathy

No.: 25

A

Haemolytic uraemic syndrome and thrombotic thrombocytopenic purpura :

HUS and TTP can be considered a spectrum of disease with MAHA (microangiopathic haemolytic anaemia) .

\*HUS - intravascular haemolysis with red cell fragments, MAHA, low plt and renal failure. Usually follows a diarrhoeal illness - E. coli 0157. Familial forms of the disease also exist, with recurrent episodes. There is fibrin deposition in the vascular endothelium esp. in the kidneys. Children usually recover but prognosis worse in the older population. Treatment includes prostacyclins (inhibit plt. aggregation), ffp and plasma exchange .

\*TTP - widespread hyaline thrombi in the small vessels - MAHA, renal failure and neurological involvement. May benefit from steroids, plasma exchange and prostacyclins .

Henoch-Schonlein purpura :

Disease mainly of childhood with skin rash (buttocks) abdominal pains, joint pains and GN. Often a history of recent URTI. Raised IgA in half.

No.: 26



No.: 26

E





No.: 27

A 60-year-old man is referred to the renal outpatients for investigation of renal impairment .

Blood tests show the following :

Na 140

K 4.8

Urea 12

Creat 180

Ca 2.9

HCO<sub>3</sub> 18

CXR showed bilateral hilar lymphadenopathy

On renal biopsy you may expect to see the following:

Options

A. IgA deposits

B.  onion skin  appearance

C. FSGS

D. Intratubular casts

E. Granulomatous interstitial nephritis

No.: 27

E

Sarcoidosis :

Clinically important renal failure in sarcoidosis is uncommon. Can cause tubular proteinuria, Fanconi's syndrome and distal or proximal RTA. Biopsy will usually show granulomatous interstitial nephritis.







No.: 28

A 2-year-old boy was referred for investigation of failure to thrive. He was normotensive .

These are his blood results :

Na 140

K 2.5

Urea 3.6

Creat 52

Chloride 90

HCO<sub>3</sub> 32

The urinary Cl was measured and found to be high .

These results are consistent with :

Options

- A. Liddle's syndrome
- B. Bartter's syndrome
- C. Spironolactone use
- D. Chronic vomiting
- E. Excessive sweat chloride loss

No.: 28

B

May present at birth with dehydration and polyhydramnios or in infancy/childhood with failure to thrive. Defect in the transepithelial transport of sodium chloride in the thick ascending loop of Henle, leading to salt wasting, potassium loss and metabolic alkalosis .

Normotensive .

Differential diagnosis :

\*Chronic vomiting

\*Diarrhoea

\*Excessive sweat chloride losses

\*Diuretic use

Treatment :

\*K<sup>+</sup> supplements

\*Indomethacin (inhibits PG synthase)

\*Monitor fluid status closely

Liddle's syndrome :

Mutation in the gene encoding for amiloride-sensitive epithelial sodium channel in the distal tubule and collecting duct, causing excessive sodium reabsorption which is coupled with K<sup>+</sup> and H<sup>+</sup> secretion. There is a low aldosterone and renin production .

Results in Hypokalaemic, metabolic alkalosis and hypertension .

Treatment :

Sodium restriction and amiloride

Hypokalaemia :

\*Increased renal loss

-Diuretics (Thiazides and loop)

-Renal diseases

-RTA types 1 and 2

-Renal tubular damage (cytotoxics, amphotericin, release of urinary tract obstruction)

-Bartter's Syndrome

-Liddle's Syndrome

\*Increased aldosterone secretion

-Liver failure

-Heart failure

-Nephrotic syndrome

-Cushing's

-ACTH producing tumours

\*Exogenous mineralocorticoid

-Corticosteroids

-Liquorice (potentiates the renal effects of cortisol)

\*Redistribution to cells

-Salbutamol

-Insulin

-Alkalosis

-Hypokalaemic periodic paralysis

\*GI loss

-Vomiting

-Diarrhoea

-Purgative abuse

- Severe dietary deficiency



No.: 29

A 50-year-old man with a known history of reflux nephropathy and mild chronic renal failure is found to have the following results .

Na 140

K 5.6

Urea 14.0

Creat 180

HCO<sub>3</sub> 16

A possible explanation for these results is :

Options

- A. Type 2 RTA
- B. Type 1 RTA
- C. Type 4 RTA
- D. Bartter's syndrome
- E. Metolazone therapy

No.: 29

C

Hyperkalaemia :

\*Decreased excretion

-Renal failure

-Drugs (amilofide, Spironolactone)

-Aldosterone deficiency

-Hyporeninaemic hypoaldosteronism (type 4 RTA)

-Addisons disease

-ACE inhibitors

-NSAIDs

-Cyclosporin

-Acidosis

\*Increased release from cells

-Acidosis

-DKA

-Rhabdomyolysis

-Turnour lysis syndrome

-Digoxin poisoning

-Vigorous exercise

\*Increased load

-IV infusions

-Transfused blood

\*Spurious

-Increased in vitro release from cells - leukaemia, infectious mononucleosis, traumatic transit

Renal tubular acidosis (RTA):

Type 1 (Distal) RTA

Failure of H<sup>+</sup> excretion in the distal tubule, causing :

-Acidosis

-Hypokalaemia

-Inability to acidify urine to pH &lt;5.5, despite systemic acidosis

-Hypercalciuria

-Low urinary citrate

Results in Osteomalacia, renal stones and recurrent UTI .

Causes :

-Idiopathic

-Nephrocalcinosis (chronic hypercalcaemia, medullary sponge kidney)

-Genetic (Ehlers-Danlos and Marfan ♦s)

-Hypergammaglobulinaemic states (Cirrhosis, amyloidosis and Cryoglobulinaemia)

-Drugs (Amphotericin and lithium)

-Autoimmune (Thyroiditis, PBC, Sjogren ♦s)

-Urinary tract obstruction

-Sickle cell anaemia

-SLE

-Renal transplant rejection

Treatment :

-Sodium bicarbonate

-Potassium supplements

-Citrate

Type 2 (proximal) RTA

Failure of sodium bicarbonate reabsorption in the proximal tubule .

Very rare in adult practice .

-Acidosis

-Hypokalaemia

-Inability to lower urine pH &lt;5.5

Usually occurs as part of a generalised tubular defect with glucosuria, phosphaturia, uricosuria and amino-aciduria (Fanconi ♦s syndrome)

Causes :

-Cystinosis

-Wilson ♦s disease

-Multiple Myeloma

-Toxins (Lead, Copper, Carbonic anhydrase inhibitors)

Treatment :

-Sodium Bicarbonate .

Type 4 RTA

□ Hyporeninaemic hypoaldosteronism □

-Hyperkalaemia

-Acidosis



Most common in patients with mild CRF caused by tubulointerstitial disease such as reflux nephropathy or diabetes .

Chronic NSAID ingestion can cause a similar picture .

Treatment :

-Fludrocortisone

- Sodium bicarbonate

<p>No.: 30</p> 	<p>No.: 30</p> <p>B</p> 
<p>No.: 31</p> <p>An unknown man is brought into A&amp;E with a GCS of 8/15, having been found collapsed in the street. Bloods show the following results :</p> <p>Na 140 K 5.6 Urea 18 Creat 220 Cl 95 HCO<sub>3</sub> 14 BM 5.2</p> <p>Urine microscopy showed crystals .</p> <p>Which of the following is true?</p> <p>Options</p> <p>A. The urine crystals are due to the conversion of methanol to oxalic acid B. Urinary crystals are due to uric acid C. The anion gap is normal D. IV ethanol may be an appropriate therapeutic step E. The diagnosis is likely to be ethanol intoxication</p>	<p>No.: 31</p> <p>D</p> <p>ETHYLENE GLYCOL POISONING</p> <p>Antifreeze initially causes a GI upset, then neurological involvement including coma followed by renal failure and cardiorespiratory collapse. Metabolised by the liver to glycoaldehyde and oxalic acid .</p> <p>Diagnosis by blood levels and detection of oxalate crystals in the urine .</p> <p>Treatment is by correction of acidosis with IV bicarbonate and IV or oral ethanol, which will inhibit the metabolism of ethylene glycol to its toxic metabolites. HD may be indicated .</p> <p>METHANOL</p> <p>Metabolised in the liver to formate .</p> <p>Minor poisoning causes headache, breathlessness and photophobia. Severe poisoning causes papilloedema, optic atrophy and blindness .</p> <p>Again, correct acidosis with bicarbonate, and ethanol infusion may be indicated to inhibit conversion to toxic metabolites.</p>



No.: 32

The following results were obtained from a 40-year-old lady who presented to her GP with fatigue .

Na 138  
Hb 6.2  
Co Ca 2.0  
K 5.6  
WCC 8.0  
PO4 2.2  
Ur 32.0  
plts 200  
Creat 660  
HCO3 17

On further questioning, she admitted to taking an over-the-counter medicine for weight loss, from a local health-food shop .

Imaging showed bilateral small kidneys .

Which of the following are true?

Options

- A. She has an increased risk of urothelial malignancy
- B. The renal failure is likely to be acute
- C. The anaemia is due to haemolysis
- D. The anaemia is due to iron deficiency only
- E. She has a good chance of recovery in renal function

No.: 32

A

#### CHINESE HERB NEPHROPATHY

Aristolochic acid has been found in certain medications sold in Chinese health shops, especially for slimming regimes and acne. It is derived from certain plants in the Aristochia species. Aristolochic acid is carcinogenic, nephrotoxic and mutagenic. Chronic ingestion can lead to rapidly progressive interstitial fibrosis of the kidneys and progression to end stage renal failure. Urothelial carcinoma may occur in patients with ESRF especially if they have received a transplant (immunosuppression) .

Interestingly , the histology is similar to that of BALKAN NEPHROPATHY, a disease which is seen in villages along tributaries of the river Danube ♦ a disease now thought to be related to chronic ingestion of a fungal toxin.

No.: 33



No.: 33

B







<p>No.: 34</p> <p>A 45-year-old man was referred to the nephrology outpatient clinic due to the detection of persistent proteinuria on urine dipstix. He admitted to have painful fingers and toes over the preceding few years, and on examination was noted to have a characteristic rash over his trunk and buttocks. He had previously been referred to an ophthalmologist who had noted corneal deposits .</p> <p>These clinical findings are likely to be due to :</p> <p>Options</p> <p>A. Alport's syndrome B. Coeliac disease C. ANCA positive vasculitis D. Cryoglobulinaemia type II E. Fabry's Disease</p>	<p>No.: 34</p> <p>E</p> <p>X-linked recessive condition due to a deficiency of the lysosomal hydrolase, a-galactosidase, causing an accumulation of glycosphingolipids in the liver, kidney, blood cells and ganglion cells in the peripheral nerves. Initially presents with nerve involvement, but then renal problems in later life (ESRF age 40 ♦ 50) .</p> <p>Treatment with enzyme replacement.</p>
<p>No.: 35</p> <p>A 45-year-old man was referred to the nephrology outpatient clinic due to the detection of persistent proteinuria on urine dipstix. He admitted to have painful fingers and toes over the preceding few years, and on examination was noted to have a characteristic rash over his trunk and buttocks. He had previously been referred to an ophthalmologist who had noted corneal deposits .</p> <p>An appropriate treatment would be :</p> <p>Options</p> <p>A. Enzyme replacement with a-galactosidase A B. Gluten-free diet C. Immunosuppression with steroids D. Immunosuppression with cyclophosphamide E. IFN-alpha</p>	<p>No.: 35</p> <p>A</p> <p>X-linked recessive condition due to a deficiency of the lysosomal hydrolase, a-galactosidase, causing an accumulation of glycosphingolipids in the liver, kidney, blood cells and ganglion cells in the peripheral nerves. Initially presents with nerve involvement, but then renal problems in later life (ESRF age 40 ♦ 50). Treatment with enzyme replacement.</p>



No.: 36

A 20-year-old man was initially referred to the renal outpatient with haematuria and was also noted to suffer from deafness. A brother had also been investigated for haematuria at a similar age. He went on to develop end stage renal failure and had a live related renal transplant after being one year on dialysis. His transplant initially functioned well, but later he developed haematuria and proteinuria followed by renal dysfunction without evidence of rejection .

The likely initial diagnosis is :

Options

- A. Fabry's disease
- B. Alport's syndrome
- C. APKD
- D. FSGS
- E. Brachial-oto-renal syndrome

No.: 36

B

Genetic defect in type IV collagen, present in the glomerular basement membrane, ear and eye .

%90-%80X-linked dominant

%10autosomal recessive ♦ equally severe in males and females

Clinically :

\*Renal ♦ haematuria and renal impairment. ESRF in males by 15♦30 years

\*Bilateral sensorineural deafness

\*Corneal lesions .

A rare complication of transplantation in Alports is due to the presence of normal glomerular basement membrane collagen in the transplant, which the patient develops antibodies against, causing renal injury.

No.: 37



No.: 37

E





No.: 38

A 50-year-old man with familial hypercholesterolaemia presents to A&E with progressive severe pains and weakness of the thighs and arms. Blood tests reveal the following :

Na 140  
K 5.6  
Urea 20  
Creat 420  
Hb 12.2  
WCC 10.2  
plt 140  
Co Ca 1.9

The most helpful next investigation to obtain a diagnosis is:

Options

- A. Renal Ultrasound scan
- B. CK level
- C. EMG
- D. LFTs and Clotting
- E. 24-hour urine collection

No.: 38

B

RHABDOMYOLYSIS CAUSES :

- ☐ Crush injury
- ☐ Ischaemic injury
- ☐ Prolonged fits
- ☐ Drugs ♦ Statins, Fibrates, cyclosporin + statin
- ☐ Overdose ♦ heroin, barbiturates, alcohol
- ☐ Metabolic myopathies ♦ McArdles syndrome
- ☐ Infections ♦ viral necrotizing myositis
- ☐ Inflammatory myopathies
- ☐ Malignant Hyperpyrexia

Release of myoglobin from muscles causes occlusion of the renal tubules .

Low Ca is due to increased protein binding .

Myoglobin in urine causes dipstix positive for blood .

CK massive .

Supportive treatment ♦ correct any fluid deficit or acidosis early.





No.: 39

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Na 140  
K 5.6  
Urea 20  
Creat 420  
Hb 12.2  
WCC 10.2  
plt 140  
Co Ca 1.9

Examination of the urine is likely to show the following :

Options

- A. Dipstix positive haematuria in the absence of RBC on microscopy
- B. Oxalate Crystals
- C. White cell casts
- D. Cysine stones
- E. Glycosuria

No.: 39

A

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CK massive .

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No.: 40



No.: 40

B







No.: 41

An 84-year-old gentleman was found on the floor of his hallway by police, after a neighbour raised the alarm when his milk had not been taken in. On assessment in casualty, his Glasgow coma scale (GCS) was 11/15, and he had a dense right hemiparesis. He was dehydrated. He smelt of urine .

His results are as follows :

Na 147

K 7.9

Bic 21

Urea 19

Creatine 240

Glu 7.5

Calcium (total) 1.68

Phosphate 1.8

Bili 11

Alk phos 164

Albumin 37

Urine +++Blood + protein

Urine microscopy No White blood Cells. No Red Blood Cells. No organisms seen

The most likely cause of his biochemistry is :

Options

A. Hyperosmolar non-ketotic diabetic coma (HONK)

B. Pyelonephritis

C. Chronic renal failure and renal bone disease

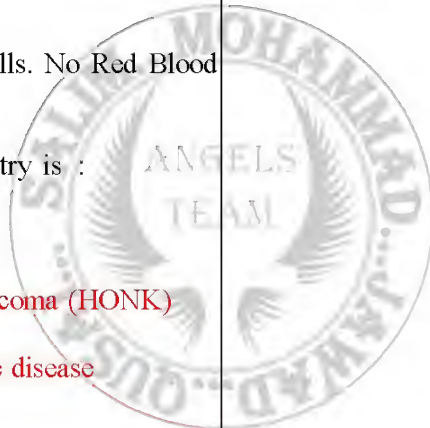
D. Rhabdomyolysis

E. Adult polycystic kidney disease

No.: 41

D

In this clinical scenario, rhabdomyolysis would best explain the hyperkalaemia, renal failure, hypocalcaemia and hyperphosphataemia seen. Urine myoglobin will give a false positive test for blood on dipstick testing. Many labs/hospitals will not test for it further, and so total creatine kinase (CK) is the test of choice. Chronic renal failure is unlikely, given the normal haemoglobin.





No.: 42

An 85-year-old lady presented to her general practitioner (GP) with a two-month history of severe back pain. She had been feeling unwell for some time and had lost weight, though was unsure how much. Her past history included angina, which was well controlled on atenolol 100 mg daily and nicorandil 10 mg bd. She was an ex-smoker of 40 cigarettes per day, having given up smoking 20 years previously. She lived alone in a warden-monitored flat and was normally independent in activities of daily living but her ability to perform her daily chores had become increasingly difficult over the past week, because of the severity of her pain. She had been bedbound for 2 days. Her husband had died 3 years previously of lung cancer. She had two children who lived several hours' drive away. Because of the severity of her pain and her inability to cope at home, she was admitted to hospital.

Investigations revealed :

Haemoglobin 8.9 g/dL

MCV 90 fL

White cell count  $4.2 \times 10^9/L$

Platelets  $79 \times 10^9/L$

Serum sodium 137 mmol/L

Serum potassium 4.6 mmol/L

Serum urea 13.0 mmol/L

Serum creatinine 176 mmol/L

Serum corrected calcium 2.5 mmol/L

Serum albumin 37 g/L

Serum phosphate 1.5 mmol/L

Serum total protein 96 g/L

Serum IgG 32 g/L

Serum IgA 0.2 g/L

Serum IgM 0.1 g/L

Serum Electrophoresis: Single band in gamma region typed as IgG Kappa. Plain X-ray showed collapse of L1 and L2 vertebrae.

Which of the following would be a suitable therapy to control this patient's back pain?

Options Choose 1

A. Bisphosphonate

B. Dexamethasone

C. Melphalan

D. Non-steroidal anti-inflammatory agent

E. Radiotherapy

No.: 42

The diagnosis is multiple myeloma, for which radiotherapy is the best treatment for skeletal lesions.





No.: 43

A 76-year-old lady with heart failure secondary to hypertensive heart disease was reviewed in the outpatient clinic. She was taking perindopril 2 mg od, digoxin 125 mcg od and had recently had her dose of furosemide increased from 40 mg to 80 mg od for ankle swelling. During the consultation she complained of recent episodes of dizziness, particularly when standing upright after being seated. There were no clinical signs of cardiac failure.

Serum urea electrolytes showed :  
 Serum urea 13.3 mmol/L  
 Serum creatinine 221 umol/L

What should be the next step in her management?

Options Choose 1

- A. Add an angiotensin-2 receptor blocker
- B. Increase dose of perindopril
- C. Start bisoprolol
- D. Stop furosemide temporarily then restart at a lower dose within a few days
- E. Stop perindopril

No.: 43

D

The postural hypotension and recent increase in furosemide suggest intra-vascular fluid depletion secondary to overdiuresis. Her pre-renal failure should therefore respond to reduction in diuretic dose, but her renal function should obviously be closely monitored.

No.: 44



No.: 44

C





No.: 45

A 30-year-old man developed bilateral loin pain and macroscopic haematuria. His symptoms had started 2 days after developing a sore throat and fever. His blood pressure was 138/88 mm Hg. Urinalysis was positive for blood (4+) and protein (2+).

What is the most likely diagnosis?

Options

- A. IgA nephropathy
- B. Infective endocarditis
- C. Microscopic polyangiitis
- D. Nephrolithiasis
- E. Post-streptococcal glomerulonephritis

No.: 45

A

The history is classical for IgA nephropathy, with development of bilateral loin pain (presumed secondary to renal capsular stretching) and macroscopic haematuria within 72 h of a bacterial upper respiratory tract infection. The condition is usually self-limiting but may be recurrent and is now the leading cause of acute glomerulonephritis. One to two percent of patients with IgA nephropathy progress to end-stage renal failure (ESRF) per year.

As well as this classical presentation the condition may also present with persistent microscopic haematuria.







No.: 46

A 32-year-old man was referred to the renal clinic. Two weeks previously he had an episode of loin pain, and passed a small renal stone. He had one previous episode three years previously, but did not seek medical advice. He was otherwise fit and well .

Investigations showed :

Haemoglobin 15.6 g/dL

White blood cells 6.8 x 10<sup>9</sup>/L

Platelets 186 x 10<sup>9</sup>/L

Serum sodium 140 mmol/L

Serum potassium 4.4 mmol/L

Serum urea 5.8 mmol/L

Serum creatinine 94 umol/L

Serum corrected calcium 2.36 mmol/L (NR 2.2-2.6)

-24hour urine collection

Volume 1200 ml/24hr

Calcium 16 mmol/24hr (NR 2.5-7.5)

Analysis of stone showed it to contain mostly calcium .

He is initially advised to increase his fluid intake, but he returns to your clinic after six months, having had three further episodes .

Which of the following medications would you prescribe?

Options

A. Allopurinol

B. Loop diuretic

C. Sodium bicarbonate

D. Potassium citrate

E. Thiazide diuretic

No.: 46

E

Thiazide diuretics decrease urinary calcium excretion and help prevent formation of calcium stones. Bicarbonate and potassium citrate are used to help dissolve uric acid and cystine calculi. Allopurinol is used to reduce urate secretion in patients with pure urate stones, Loop diuretics have no role in the management of nephrolithiasis.



No.: 47

A 26-year-old man is seen in the outpatient clinic 3 weeks after receiving a cadaveric renal transplant. He is currently taking prednisolone and ciclosporin. One week ago his serum urea and electrolytes were normal. He says that he feels well .

Repeat serum urea and electrolytes show :

Serum sodium 138 mmol/l  
 Serum potassium 4.0 mmol/l  
 Serum urea 12 mmol/l  
 Serum creatinine 174 umol/l

The renal transplant was human leukocyte antigen (HLA) matched. The patient was cytomegalo virus (CMV) IgG negative; the kidney donor was CMV IgG positive .

Which of the following best accounts for the change in renal function?

Options

- A. Acute cellular rejection
- B. Ciclosporin toxicity
- C. CMV infection
- D. Dehydration
- E. Pyelonephritis of transplanted kidney

No.: 47

C

All five answers are potential causes of renal deterioration, but the patient would likely be systemically unwell with both pyelonephritis and acute rejection and rejection is also unlikely with complete HLA matching. Ciclosporin toxicity generally develops chronically and there is no particular reason why the patient should be dehydrated. As the recipient was CMV negative and the donor was CMV positive the best answer is CMV nephritis.





No.: 48

A 24-year- old Ghanaian man presents to the Accident and Emergency department with macroscopic haematuria. On further questioning he gives a history of polyuria and nocturia over some time .  
Investigations show :

Hb 7.0/dL  
MCV 60.0fL  
WBC 14.0 x 10<sup>9</sup>/L  
Neutrophils 10.3 x 10<sup>9</sup>/L  
Platelets 488 x 10<sup>9</sup>/L

What is the likely cause of the urinary symptoms?

Options Choose 1

- A. Diabetes mellitus
- B. Glomerulonephritis
- C. Renal calculi
- D. Renal papillary necrosis
- E. Urinary tract infection

No.: 48

D

Renal papillary necrosis is a well recognised complication of Sickle Cell disease.

No.: 49



No.: 49

C



No.: 50



No.: 50

D





No.: 51

A 60-year-old man with medication controlled essential hypertension returns to clinic. He is being treated with bendroflumethiazide 2.5 mg od, enalapril 20 mg od, ibuprofen 600 mg tds. His blood pressure in clinic is 130/78 mmHg .

Investigations show today :

Serum sodium 128 mmol/L  
 Serum potassium 5.3 mmol/L  
 Serum urea 18 mmol/L  
 Serum creatinine 270 umol/L

Investigations show 3 months previously :

Serum sodium 137 mmol/L  
 Serum potassium 4.4 mmol/L  
 Serum urea 6.9 mmol/L  
 Serum creatinine 98 umol/L

Which one of the following would be the most likely cause of the change in his serum urea and electrolytes?

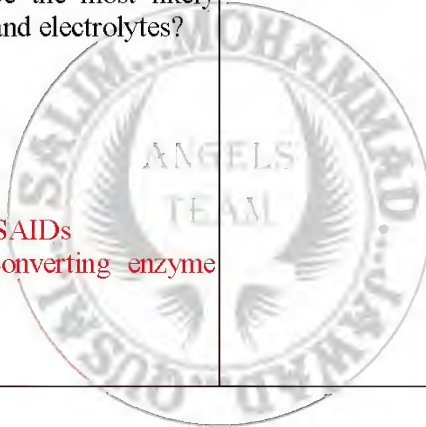
Options Choose 1

- A. Hypertensive renal disease
- B. Hypovolaemia
- C. Interstitial nephritis secondary to NSAIDs
- D. Treatment with an angiotensin converting enzyme (ACE) inhibitor
- E. Urinary tract infection

No.: 51

C

In acute interstitial nephritis the fractional excretion of Na is often high (with a resultant low serum Na). Therefore, nonsteroidal anti-inflammatory drug (NSAID) induced acute interstitial nephritis (AIN) is the best answer with this electrolyte pattern. One would expect a much higher K level, if the ACE I were responsible.







No.: 52

A 48-year-old patient with chronic renal failure was admitted to hospital following a gastro-intestinal bleed. On examination, his blood pressure was 138/88 mmHg, pulse 96 beats per minute, regular. Rectal examination revealed malaena stool. Investigations showed:

Haemoglobin 10.6 g/dL  
 MCV 84 fL  
 Serum sodium 138 mmol/L  
 Serum potassium 5.0 mmol/L  
 Serum urea 16 mmol/L  
 Serum creatinine 430 umol/L

Investigations two weeks previously at clinic:

Haemoglobin 12.0 g/dL  
 MCV 86 fL  
 Serum sodium 139 mmol/L  
 Serum potassium 4.7 mmol/L  
 Serum urea 9 mmol/L  
 Serum creatinine 250 umol/L

Which of the following is the most appropriate next step in his management?

Options Choose 1

- A. Blood transfusion
- B. Haemodialysis
- C. Hydration with intravenous fluids
- D. Observation on medical ward
- E. Immediate upper GI endoscopy

No.: 52

C

The patient is haemodynamically stable with a relatively small drop in his Hb level. However, the fluid loss and gut protein load have placed an additional strain on his failing kidneys therefore rehydration is the most important immediate step.





No.: 53

A 65-year-old Pakistani lady is referred to renal clinic. She has been in the UK for 6 months and over the last few months she has complained of night sweats and weight loss of 5 kg. She has been on atenolol for hypertension for the last 5 years. On examination, BP 130/84 and pulse 60. Chest is clear but she has a subclavian lymph node. She has some ankle odema.

## Investigations :

Urine dipstick protein++ wbc + pH>5  
 CXR bilateral hilar lymphadenopathy  
 USS right kidney small calculus at lower pole  
 Na 135 K 3.2 HCO<sub>3</sub> 15 Cl 108 Ur 6 Cr 150  
 Ca 2.4 PO<sub>4</sub> 1.2  
 Albumin 34  
 Serum ACE normal

The most likely unifying renal diagnosis is :

## Options

- A. Chronic interstitial nephritis with type 1 renal tubular acidosis  
 B. HIV nephropathy  
 C. Sarcoidosis  
 D. Renal stone disease  
 E. Chronic interstitial nephritis with type 2 renal tubular acidosis

No.: 53

## A

Anion gap = Na + (K) - (Cl + HCO<sub>3</sub>)

Metabolic acidosis with a raised anion gap :

L- Lactic acidosis

Type A - Shock, sepsis, poisoning

Type B - metformin, enzyme defects (PDH), haematological malignancies

D - lactic acidosis - fermentation of glucose by gut bacteria in the blind loop syndrome

Renal failure - uraemic acids

Ketoacidosis - DM, alcohol, starvation

Exogenous acids - salicylates, methanol, ethylene glycol

Normal anion gap metabolic acidosis :

GI HCO<sub>3</sub> loss - diarrhoea, ileostomy, ureterosigmoidostomy

Renal HCO<sub>3</sub> loss - acetazolamide, prox RTA, hyperparathyroidism

Less renal H excretion - RTA 1/IV

Increased HCl production - NH<sub>4</sub>Cl ingestion

**RENAL ROLE IN ACID-BASE BALANCE** - To help maintain acid-base balance, the kidneys reabsorb filtered bicarbonate and excrete the daily acid load derived principally from the metabolism of sulphur-containing amino acids.

Reabsorption of bicarbonate - Reabsorption of filtered bicarbonate predominantly occurs in the proximal tubules primarily by Na-H exchange. Approximately 85 to 90 percent of the filtered load is reabsorbed proximally. By comparison, 10 percent is reabsorbed in the distal nephron primarily via hydrogen secretion by a proton pump. Type II (Proximal) RTA originates from the inability to reabsorb bicarbonate normally in the proximal tubule. This disturbance leads to an increase in delivery of bicarbonate to the distal nephron. Since the distal tubule is initially overwhelmed, bicarbonate leaks into the final urine, leading to a metabolic acidosis. Excretion of hydrogen ions - occurs in the distal tubule either directly or via ammonia synthesis and excretion. Type I RTA is due to inability of the distal tubules to excrete hydrogen ions.

	Type I RTA	Type II	Type IV
Defect	Impaired distal acidification	Reduced proximal bicarbonate reabsorption	Decreased aldosterone secretion or effect
Plasma bicarbonate	<10	12-20	>17
Plasma potassium	Low (mostly)	Low	High
Urine pH	>5.3 always	>5.3 with alkali load	<5.3 (mostly)
Other	Osteoporosis Nephrocalcinosis Renal Stones Poor growth	Osteomalacia Poor growth	Poor Very common

Type I	Type II	Type IV
Primary	Primary	Aldosterone deficiency
Familial - AD/AR	Idiopathic, sporadic	Primary
Secondary	Cystinosis	Addison's
Hypercalciuria	Tyrosinaemia	CAH
SJ - Sjögren's syndrome	Hered. Fructose intolerance	Heparin
Rheumatoid arthritis	Galactosaemia	Hyporeninaemic hypoadosteronism
SLE	Type I glycogen storage dis	Diabetes
Hyperglobulinaemia	Wilson's	ACEI
Cirrhosis	Low's syndrome	NSAIDs
Sickle cell disease		Cyclosporin
Obstructive uropathy	Acquired	HIV
Renal transplantation	Multiple myeloma	Acute glomerulonephritis
Ifosfamide	Ifosfamide	Obstructive uropathy
Amphotericin B	Acetazolamide	Aldosterone Resistance
Lithium	Amyloidosis	Amiloride
	Heavy metals	Spironolactone
	Vit D deficiency	Triamterene
	Renal transplantation	Trimethoprim
	PNH	Pentamidine
		Tubulointerstitial disease
		Pseudohypoadosteronism

Fanconi's syndrome is the term used when there is a generalised proximal tubular defect associated with proximal RTA. The proximal tubule reabsorbs the majority of glucose, phosphate, amino acids and urate. Therefore there is renal glycosuria (also caused by pregnancy), hyperphosphaturia (leads to osteomalacia), hypouricaemia, aminoaciduria.

## Treatment

Type I - NaHCO<sub>3</sub> or sodium or potassium citrate - small doses needed to prevent complications and maintain growth. Type II - large doses of above treatments needed - care as hypokalaemia can be exacerbated. Type IV - little needed - care with hyperkalaemia. Sometimes loop or thiazides diuretics. Fludrocortisone for primary adrenal insufficiency.



No.: 54

A 17-year-old girl presented was referred to the acute medical take with a history of bloody diarrhoea lasting for 7 days two weeks ago. Since then she has had increasing nausea and malaise, and some ankle swelling. Her only other history was of menorrhagia, and back pain for which she took non-steroidals. She was having difficulty passing urine. She had eaten some sausages from her local butcher at a barbeque the day before developing diarrhoea .

On examination she was pale, with evidence of petechiae over her legs. She had puffy eyes. Her blood pressure was 160/95. On examination she was afebrile, but had a tachycardia, and crackles on inspiration at both lung bases. She had an appendectomy scar .

FBC Hb 8.9 WCC 14.0 neuts 10 Pl 27 PT 12 APTT 34 Fib 4

Biochem Na 138 K 6.0 urea 30 Creat 370 alb 29

Dipstick urine Blood ++ protein +

The likely cause of her renal impairment is :

Options

- A. Analgesic nephropathy
- B. IgA nephropathy
- C. Henoch Sch $\diamond$ nlein purpura
- D. Post-streptococcal glomerulonephritis
- E. Haemolytic-uraemic syndrome

No.: 54

**E**  
Haemolytic Uraemic Syndrome/Thrombotic  
Thrombocytopenic Purpura

#### Aetiology

- Infections  $\diamond$  E Coli (O157:H7), Shigella, HIV, pneumococcus
- Drugs  $\diamond$  quinine, ticlopidine, clopidogrel, mitomycin C, cyclosporin, ? COCP
- Pregnancy/post partum
- Autoimmune  $\diamond$  SLE, scleroderma, antiphospholipid syndrome
- Conditioning for bone marrow transplantation

NOTE  $\diamond$  Von Willebrand $\diamond$ s factor cleaving protease deficiency (or an IgG inhibitor to this) in significant proportion of those with TTP .

Factor H (? factor I) deficiency/polymorphisms associated with HUS

#### Clinical Features

- Microangiopathic haemolytic anaemia
- Thrombocytopenia (but normal clotting)
- Acute Renal Failure
- Neurological abnormalities
- Fever
- Hypocomplementaemia (in about 50%)
- Differential Diagnosis
- Malignant Hypertension
- Preeclampsia
- Vasculitis
- DIC

#### Treatment

Plasma exchange with FFP

Treat cause





No.: 55

A 65-year-old Pakistani lady is referred to renal clinic. She has been in the UK for 6 months and over the last few months she has complained of night sweats and weight loss of 5 kg. She has been on atenolol for hypertension for the last 5 years. On examination, BP 130/84 and pulse 60. Chest is clear but she has a subclavian lymph node. She has some ankle odema.

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 Ca 2.4 PO<sub>4</sub> 1.2  
 Albumin 34  
 Serum ACE normal

What is the biochemical diagnosis?

## Options

- A. Metabolic acidosis with raised anion gap  
 B. Type I renal tubular acidosis  
 C. Type II renal tubular acidosis  
 D. Type III renal tubular acidosis  
 E. Type IV renal tubular acidosis

No.: 55

## C

Anion gap = Na + (K) - (Cl + HCO<sub>3</sub>)

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	Heavy metals	Spironolactone
	Vit D deficiency	Triamterene
	Renal transplantation	Trimethoprim
	PNH	Pentamidine
		Tubulointerstitial disease
		Pseudohypoadosteronism

Fanconi's syndrome is the term used when there is a generalised proximal tubular defect associated with proximal RTA. The proximal tubule reabsorbs the majority of glucose, phosphate, amino acids and urate. Therefore there is renal glycosuria (also caused by pregnancy), hyperphosphaturia (leads to osteomalacia), hypouricaemia, aminoaciduria.

## Treatment

Type I - NaHCO<sub>3</sub> or sodium or potassium citrate - small doses needed to prevent complications and maintain growth. Type II - large doses of above treatments needed - care as hypokalaemia can be exacerbated. Type IV - little needed - care with hyperkalaemia. Sometimes loop or thiazides diuretics. Fludrocortisone for primary adrenal insufficiency.





No.: 56

A 28-year-old single woman presents to casualty. Her parents were both still live in Ghana, but she had been living in UK for the last year. She has recently returned from a holiday visiting her family. Her mother had undergone recent thyroidectomy. She is a non-smoker. She had noticed that she was more breathless than normal, and reported increasing lethargy, and a week's history of aching of her elbows and hands. On examination, she has a temperature of 37.9 and oxygen saturations of 93% on air. Her right elbow is tender and hot. Her heart sounds were normal. There is reduced air entry at the right lung base, and an associated pleural rub. Abdominal examination is unremarkable.

Hb 9.9 MCV 99 WCC 3.7 (N 3.0) Plt 305 ESR 40  
 Na 140 K 4.2 Ur 11.0 Cr 115  
 Bil 55 Alk phos 80 ALT 30 Calc 2.3 CRP 4 C3 low  
 ABGs pH 7.37 pO<sub>2</sub> 11.4 pCO<sub>2</sub> 4.4 bic 26  
 ECG Normal axis, sinus 85 bpm  
 CXR Blunting of the right costophrenic angle  
 Urine dipstick Blood + Protein □

Pick the 3 most important investigations to confirm your diagnosis?

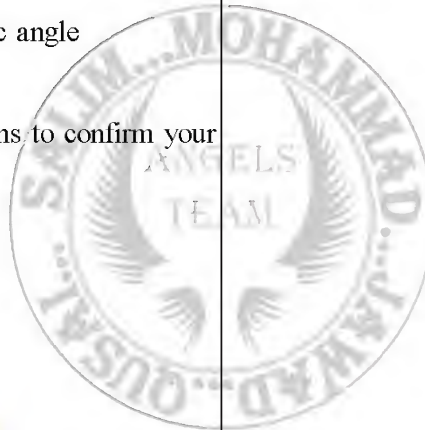
Options Choose 3

- A. Blood cultures
- B. Malarial films
- C. A V/Q scan
- D. B12 levels
- E. Antibodies to double-stranded DNA
- F. Antinuclear antibodies
- G. A renal biopsy
- H. Urine microscopy
- I. Paul Bunnell test

No.: 56

E F G

The likely underlying diagnosis is SLE as she has joint problems, a probable PE, renal impairment, normal CRP.





No.: 57

A 63-year-old Afro-Caribbean woman presents with a history of increasing tiredness and exertional breathlessness for 2 months, with some recent backache. She had received 2 courses of antibiotics for presumed chest infections. She had a family history of sickle cell disease. Her GP could find nothing on clinical examination other than that she was pale.

Investigations:

Hb 8.1

MCV 94

WCC 4.3

Plt200

Na 138, K 4.6, Urea 19, Creat 290

Bil 16 Alk phos 120 ALT 32 TP 91, Alb 31

Urine dipstick - Blood -; Protein +++

The most likely diagnosis is :

Options Choose 1

- A. Renal cell carcinoma
- B. Late presentation of sickle cell disease
- C. Anaemia of chronic disease
- D. Combination of B12 and iron deficiency
- E. Multiple myeloma
- F. Chronic renal failure

No.: 57

E

Probably the majority of patients with myeloma have some degree of renal impairment. The worse the renal function the worse the prognosis. For most patients with significant renal dysfunction there is no renal recovery with treatment. Patients with myeloma are extremely susceptible to the effects of dehydration and X-ray contrast and therefore should be prehydrated and given NAC prior to contrast injection.

Types of kidney disease in myeloma

Myeloma kidney ♦ casts, tubular injury due to light chains

Fanconi ♦ syndrome ♦ due to light chains

AL amyloidosis ♦ lambda light chains usually

Light chain deposition disease (similar to amyloid but congo red negative)

Type I cryoglobulinaemia

Hypercalcaemia

Plasma cell infiltration ♦ may be reversible

? uric acid nephropathy ♦ unusual.

Causes of a hypergammaglobulinaemia

Chronic infection..OM, TB, SBE (all)

Chronic inflammation ♦ SLE, RA, Sjogrens (all, IgG2 in Sjogrens)

Liver

Hodgkins ♦ IgE

Viral HIV, EBV



No.: 58

An 64-year-old man was found on the floor of his hallway by police, after a neighbour raised the alarm when his milk had not been taken in. On assessment in casualty, his GCS was 11/15, and he had a dense right hemiparesis. He was dehydrated. He smelt of urine .

His results are as follows:

Na 147

K 7.9

Bic 21

Ur 19

Cr 340

Glu 7.5

Calcium (total) 1.68

Phosphate 2.8

Bili 11

Alk phos 164

Albumin 37

Glu 13

WCC 12.3

Hb 13.9

Plt 366

Urine +++Blood +protein

CXR Unremarkable

Urine microscopy No WC. No RBCs. No organisms seen

The most likely cause of his biochemistry is :

Options

A. Hyper-osmolar non-ketotic state

B. Pyelonephritis

C. Chronic renal failure and renal bone disease

D. Rhabdomyolysis

E. Systemic amyloidosis

No.: 58

D

Rhabdomyolysis

Aetiology

- Trauma, crush injury
- Extreme exertion
- Heat stroke
- Status epilepticus
- Metabolic myopathies
- Mitochondrial myopathies
- Malignant hyperthermia (ryanodine receptor gene mutations)
- Neuroleptic Malignant Syndrome
- Drugs- alcohol : e.g:
  - ✓ Amphetamines
  - ✓ Heroin
  - ✓ Statins/fibrates
- Carbon monoxide poisoning
- Infection ♦ mainly viral
- Influenza, parainfluenza, coxsackie, EBV, HIV, CMV
- Electrolyte ♦ hypokalaemia, hypophosphataemia mainly
- Endocrine ♦ hypothyroidism, DKA, pheochromocytoma

Clinical Features

Red/brown urine (positive dipstick for blood but no RBC♦s), myoglobinuria .

Acute renal failure associated with severe hyperkalaemia, hyperphosphataemia and hypocalcaemia and acidosis .

Management

Large volume of IV fluids using some sodium bicarbonate to alkalinise urine to pH>8

Treat hyperkalaemia. Treat the cause .

If fluid overloaded, dangerously hyperkalaemic, or anuric then renal replacement therapy is necessary .

Do NOT treat hypocalcaemia unless seizures as it recovers spontaneously and treatment causes ectopic calcification.



No.: 59

A 28-year-old Armenian man presents acutely with pleuritic left sided chest pain but no cough or haemoptysis. He also complained of right knee and ankle swelling and pain which he had noticed on and off for the last 8 years. He was otherwise well .

O/E temperature 39 C .

Creat 66, WBC 13, ESR 60, CRP 150. CXR normal  
Urine Protein +++++, Blood nil

What is most likely cause of his proteinuria?

Options

- A. Membrano-proliferative glomerulonephritis
- B. IgA nephropathy
- C. AA Amyloidosis
- D. Collapsing FSGS
- E. Membranous nephropathy

No.: 59

C

This patient has Familial Mediterranean Fever (FMF) and subsequent AA amyloidosis .

#### AMYLOID

% 0.8 □ 0.5of autopsies

Related to prolonged, high intensity inflammation (raised CRP, ESR, Serum amyloid A (SAA) Can be secondary to :

✓ Chronic Inflammatory conditions

RhA, juvenile arthritis, Still's 50%

Familial Mediterranean Fever

Ankylosing spondylitis

Psoriatic arthropathy

Crohn's

✓ Chronic Infections

Bronchiectasis

Chronic Osteomyelitis

Chronic infected ulcers (eg IV drug users)

#### Clinical Features

Renal - >90%, mainly glomerular deposition ♦ proteinuria/nephrotic syndrome, CRF

Gastrointestinal

Cardiac ♦ restrictive cardiomyopathy (10%)

Hepatosplenomegaly

Hypoadrenalism

#### Prognosis

4 %50year survival untreated but treatment can stabilise or improve amyloid load

#### Diagnosis

Radiolabelled SAP scan

Biopsy ♦ skin, abdominal fat pad, rectal, renal (but increased risk of bleeding) ♦ apple green birefringence of congo red stained tissue on polarised light microscopy, immunofluorescence using antiSAA .

#### Treatment

FMF ♦ Colchicine

RhA ♦ chlorambucil, cyclophosphamide

Newer specific treatments

#### AL AMYLOID Usually secondary to :

Myeloma

Monoclonal gammopathy

Waldenström's macroglobulinaemia

#### Clinical Features

Cardiac - restrictive cardiomyopathy, conduction system delay (50%)

Renal (about 50%)

Bleeding (Factor X deficiency, capillary fragility)

Neuropathy ♦ peripheral and autonomic

Hepatosplenomegaly

Gastrointestinal (reduced motility, bacterial overgrowth □

Macroglossia

Skin, joint involvement

Thyroid nodules

Prognosis - Mean 18/12 survival

#### Treatment

Prednisolone + melphalan +/- colchicine

Full Chemotherapy for myeloma

Myeloablative therapy and bone marrow transplantation .

#### Other forms of amyloidosis

B2 microglobulin-related amyloid ♦ occurs following long term haemodialysis .Causes skin and joint symptoms, carpal tunnel syndrome.

Familial amyloid polyneuropathy ♦ due to transthyretin (prealbumin) mutation ♦ causes neuropathy and cardiac problems. May be treated by liver transplantation (transthyretin is synthesised by the liver)

#### FAMILIAL MEDITERRANEAN FEVER

Autosomal recessive inheritance. MEFV gene on Chr 16 codes for pyrin (marennosin) .

Occurs predominantly in Sephardi Jews, Turks, Armenians etc

Clinically ♦ episodes of acute onset of pain (serositis) and fever lasting 1-3 days

Peritonitis (mimicks acute abdomen)

Pleuritis

Synovitis (large joint oligoarthritis)

Pericarditis

Raised inflammatory markers (CRP, SAA, ESR)

Diagnosis ♦ clinical criteria, MEFV gene mutation testing, metaraminol provocation testing





No.: 60

-65year-old Jamaican woman presents to A&E with confusion. Her husband reported progressive weight loss over the past few months. She was a non-smoker and drank a glass of rum a day. On examination she had a blood pressure of 220/140 and pulse of 85. Fundoscopy was performed and revealed blurred disk margins. The skin of her forehead, perioral area and fingers was tight. Her heart sounds were normal and bibasal crepitations were present in the lung fields. Abdominal examination was unremarkable .

Hb 10.6 Wbc 14.5 Plt 77 Pt 13.9 APPT 30 Fibrinogen 3.8

Na 135 K 3.7 Ur 22 Cr 251 Alb 35 LDH 1496

Bil 31 Alk Phos 130 AST 7

ANA positive 1:80

MSU dipstick Protein + blood +

The most likely cause of the renal impairment is :

Options

- A. Malignant hypertension
- B. Scleroderma
- C. Rheumatoid Vasculitis
- D. IgA nephropathy
- E. Wegeners granulomatosis

No.: 60

**B** This patient has a scleroderma renal crisis with malignant hypertension and acute renal failure. The key to making this diagnosis was the description of tightness of her facial skin alongwith the weakly positive ANA.





No.: 61

A 30-year-old man presents to A&E with colicky right sided abdominal pain. This had started 2 weeks ago and he tried taking ibuprofen to ease symptoms but this hadn't helped. He denied any previous medical history and was a non-smoker. On examination he was in discomfort. His BP was 150/100 and his Pulse was 70. He had oedema to the midshins .

## Investigations :

Hb 14.3 Wbc 14.7 (neut10 lymph 2.2 eosino 1.8) Plts 208

Albumin 26 Cholesterol 6 Sodium 130 Potassium 3 Ur 20 Cr 246

KUB film ♦ calculus in the right ureter

USS Right kidney 12 cm and left kidney 11 cm. No hydronephrosis .

Urine dip wbc++ protein +++ rbc nil

Which of the following is most likely to improve the renal prognosis :

## Options

- A. Treatment with lithotripsy
- B. Withdrawal of ibuprofen therapy and consideration of corticosteroids
- C. Frusemide therapy
- D. Dialysis
- E. Initiation of antibiotics

No.: 61

B

The diagnosis is acute interstitial nephritis secondary to NSAID .

Acute interstitial nephritis

✓ Immune mediated

Drug ♦ penicillin, cephalosporins, thiazides, frusemide, NSAIDS, phenytoin, allopurinol

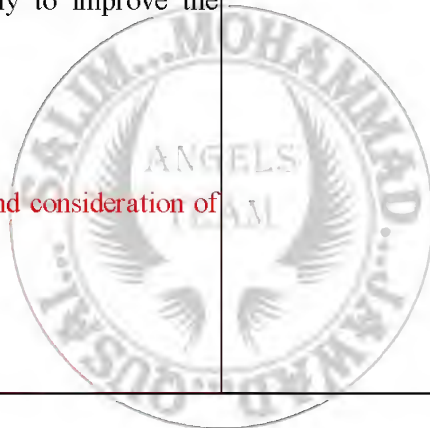
Immunological diseases ♦ GN, sarcoidosis, Sjogrens

✓ Infection mediated

Bacterial

Viral ♦ EBV CMV HIV

✓ Idiopathic





No.: 62

A 43-year-old was admitted to hospital with haemoptysis, lethargy and difficulty in walking. His wife confirmed that he had been ill for about 1 month and had lost about 5 kg in weight. Three years ago he was admitted with shortness of breath, wheeze and a cough. He remembers that he was treated for a chest infection and required nebulizers and steroid therapy. He was told that he had developed asthma. Currently he continues to use a becloforte inhaler and salbutamol inhaler. He is a lifelong nonsmoker.

On examination his BP was 130/73 and pulse 114. Temp 36.5 C. Respiratory rate was 18/min and oxygen saturation were 91% on room air. Auscultation of the lungs revealed scattered expiratory wheeze. There was mild ankle odema and a purpuric rash over the shins. Neurological examination revealed a right foot drop.

Hb 9.9 Wbc 10.8 (neut 7, lymph 1.8, eosin 1.6) Plts 687 ESR 65 CRP 57

Na 135 K 4.5 Ur 13 Cr 549 Glu 7.2 Albumin 35 HCO<sub>3</sub> 18

CXR patchy air space shadowing

Urine dip rbc++ protein ++

The most likely unifying diagnosis is :

Options

- A. Atypical pneumonia
- B. Urinary tract infection
- C. Wegener's granulomatosis
- D. Goodpasture's syndrome
- E. Churg Strauss syndrome

No.: 62

E

Rapidly progressive glomerulonephritis

Goodpastures- anti GBM antibody

Wegeners granulomatosis ♦ cANCA

Polyarteritis nodosa ♦ pANCA

Churg Strauss ♦ cANCA and pANCA

Churg Strauss Syndrome :

Small vessel vasculitis

Associated with asthma like symptoms

Mononeuritis multiplex

Eosinophilia

Acute renal failure

Treated with steroids and cyclophosphamide and ?plasma exchange





<p>No.: 63</p> <p>A 59-year-old female patient on CAPD presents to A&amp;E with a 4 hour history of abdominal pain and vomiting and diarrhoea. She is a type 1 diabetic. O/E BP 100/60 and pulse 100. Temp 38°C. BM 24. Her abdomen is diffusely tender with guarding and there are only scanty bowel sounds .</p> <p>The most likely diagnosis is :</p> <p>Options</p> <p>A. Infective gastroenteritis B. Acute ischaemic bowel C. CAPD peritonitis D. Diabetic ketoacidosis E. Diabetic gastroparesis</p>	<p>No.: 63</p> <p>C</p> <p>In a patient on CAPD who presents with abdominal pain and fever, the diagnosis is always peritonitis until proven otherwise.</p>
<p>No.: 64</p> <p>A 67-year-old patient with end stage kidney disease is seen in the dialysis unit with rigors. He has been on haemodialysis for 6 months via a left internal jugular dialysis catheter. He dialyses for 3 times a week for 4 hours. He has a temperature of 37.6°C, BP 130/90, HS reveal a pansystolic murmur. Abdominal examination is unremarkable apart from the presence of ballotable kidneys .</p> <p>Investigations :</p> <p>Hb 10.5 Wbc 6.5 Plts 700 Na 138 K 5.6 Ur 14 Cr 756 Ca 2.20 PO4 2.4 PTH 40 C3 low CRP 79</p> <p>The most important management principals are :</p> <p>Options</p> <p>A. Removal of the dialysis line, multiple blood cultures and commencement of antibiotics B. Start EPO therapy C. Start 25, hydroxycholecalciferol D. Bilateral nephrectomy E. Stop haemodialysis and start CAPD</p>	<p>No.: 64</p> <p>A</p> <p>This patient has an infected dialysis line until proven otherwise. With the pansystolic murmur the patient may also have developed bacterial endocarditis.</p>





<p>No.: 65</p> <p>A 34-year-old woman with SLE is seen 2 weeks post uncomplicated live-related renal transplant. She feels weak and unwell. She is pyrexial 38.0°C, tachycardic but normotensive.</p> <p>Hb 11.1, WBC 14, Plat 380, ESR 78. Na 139, Creat 197.</p> <p>The most likely diagnosis is :</p> <p>Options</p> <p>A. Recurrent lupus nephritis B. Cytomegalovirus nephropathy C. BK virus infection D. Acute rejection E. Post transplant lymphoproliferative disorder</p>	<p>No.: 65</p> <p><b>D</b></p> <p>It's too early for CMV (usually 3-6 months post transplant), BK virus (a polyoma virus associated with ureteritis and interstitial nephritis 10 months post transplant) or post transplant lymphoproliferative disorder (many months to years post transplant). Recurrent lupus in someone on profound immunosuppression would be unlikely. The picture of impaired renal function with fever is strongly suggestive of acute rejection.</p>
<p>No.: 66</p> <p>A 25-year-old man developed bilateral loin pain and frank haematuria. His symptoms had started 24 hours after developing a sore throat. His blood pressure was 138/88 mmHg.</p> <p>Urinalysis was positive for blood (4+) and protein (2+).</p> <p>What is the most likely diagnosis :</p> <p>Options</p> <p>A. IgA nephropathy B. Microscopic polyangiitis C. Nephrolithiasis D. Post-streptococcal glomerulonephritis E. Septicaemia</p>	<p>No.: 66</p> <p><b>A</b></p> <p>The patient has macroscopic haematuria, proteinuria and loin pain in association with pharyngitis. IgA nephropathy typically presents as recurrent haematuria in young men, often precipitated by upper respiratory tract infections; loin pain is well described; patients may be normotensive or hypertensive. Although acute post-streptococcal glomerulonephritis (APSGN) is a recognised complication of streptococcal pharyngitis, there is always a latent period of 1-2 weeks between the streptococcal infection and onset of signs and symptoms of acute glomerulonephritis (oedema, haematuria, and hypertension); loin pain is not well-recognised. Nephrolithiasis is associated with loin pain and haematuria, but the degree of proteinuria is too great in this case.</p>



<p>No.: 67</p> <p>These are the results of a 68-year-old man. His ankles are not swollen .  Na 123mmol/l ;  K 4.5 mmol/l ;  Urea 3.5 m mol/l ;  Creatinine 84//mol/l ;  BM14mmoi/l</p> <p>What is the likely cause for the occurrence of this condition in this patient :</p> <p>Options</p> <p>A. Chronic subdural haematoma  B. Diuretic therapy  C. Pleural fibroma  D. Porphyria cutanea tarda  E. Chlorpropamide therapy</p>	<p>No.: 67</p> <p>E</p> <p>This patient is most likely to have SIADH secondary to chlorpropamide therapy. Although PCT, lung disease and CNS disease also cause this syndrome they are less likely here. Diuretic therapy is less likely to be the cause of the hyponatraemia with a low urea.</p>
<p>No.: 68</p> <p>A 33-year-old man complains of polyuria .  His water deprivation test give the following results :  Resting Serum osmolality 275 mosm/kg .</p> <p>Urine osmolality at the beginning of the test 270 mosm/kg ,</p> <p>After 8 hrs of fluid deprivation serum osmolality is 282 mosm/kg ,</p> <p>The urine osmolality is 277 mosm/kg .</p> <p>What is your next investigation?</p> <p>Options</p> <p>A. The same test after a 24-hour fluid restriction  B. Electrolytes after iv DDAVP  C. A renal biopsy  D. MAG-3 renogram  E. Drug screen</p>	<p>No.: 68</p> <p>A</p> <p>This test is submaximal as the aim of the water deprivation test is to increase the plasma osmolality to approx 295 mosm/kg to ensure maximal ADH release. In a normal subject, or someone with primary polydypsia the urine osmolality will raise above 500 but will not rise with someone with diabetes insipidus. If the urine osmolality does not rise once the plasma osmolality has reached 295 then adding DDAVP (in) or vasopressin (sc) is the next step. In central DI this should correct the abnormality. However in both types of DI, deficiency or resistance to ADH is partial giving intermediate results.</p>



No.: 69

An 17-year-old man is referred to the outpatient clinic as his general practitioner has found him to have microscopic haematuria. He also has bi-lateral sensorineural deafness with a sister and younger brother who similarly afflicted. He subsequently develops end stage renal failure and receives a kidney transplant. This is initially successful, however he then develops haematuria proteinuria and renal dysfunction, without any evidence of rejection. What complication has arisen:

Options

- A. Cyclosporin toxicity
- B. Recurrence of his original disease in the transplant
- C. Post-transplantation anti-GBM antibody disease
- D. Acute rejection
- E. Cholesterol embolisation

No.: 69

A rare complication of transplantation in Alport's is due to the presence of normal glomerular basement membrane type IV collagen in the transplant to which the patient has never been previously exposed, and hence is not tolerant of, and therefore develops antibodies against, which can lead to renal injury.

No.: 70

A 65-year-old man presents having had a grand mal fit. The following tablets are found in his possession: Atenolol, Frumil, Chlorpropamide. His blood pressure is 160/95, and his pulse is 72 SR.

Investigations :

Na 118 mmol/l  
 K 3.8 mmol/l  
 Urea 6.5 mmol/l  
 Ca 2.5 mmol/l  
 HCO<sub>3</sub> 25 mmol/l  
 Glucose 9.5 mmol/l

What is the most likely cause of the fits?

Options

- A. Addisonian crisis
- B. Hypoglycaemia
- C. Drug induced SIADH
- D. Diuretic induced hyponatraemia
- E. Alcohol withdrawal

No.: 70

Chlorpropamide causes SIADH and is the most likely cause. Although diuretic will cause hyponatraemia it rarely is severe enough to cause seizures. Addisonian crisis is clearly not the answer as the BP is high and less likely with a lowish potassium.



No.: 71

A 60-year-old female presents with polyuria and polydipsia in association with a 2 year history of extreme tiredness following a viral illness .

Investigations :

Plasma osmolality (pre-overnight fast) 283 mOsm/kg ,  
 Plasma osmolality (post-overnight fast) 295 mOsm/kg ,  
 Urine osmolality (post-overnight fast) 600 mOsm/kg ,  
 Urine osmolality (post Arginine vasopressin) 580 mOsm/kg .

What is the most likely diagnosis?

Options

- A. Psychogenic polydipsia
- B. Cranial diabetes insipidus
- C. Nephrogenic diabetes insipidus
- D. Diuretic abuse
- E. Partial nephrogenic diabetes insipidus

No.: 71

A

The plasma normally concentrates in response to fluid restriction as does the urine suggesting that there is no abnormality in ADH secretion or effectiveness. It is therefore actually unnecessary to add AVP in this particular case as its use is in distinguishing nephrogenic from cranial DI.

No.: 72

A 31-year-old man with a history of epilepsy has a grand mal seizure. Laboratory tests taken immediately after the seizure has ceased reveal the following :

Arterial pH 7.19 ,  
 pCO<sub>2</sub> 45 mmHg (6 kPa) ,  
 Na 140 mmol/l ,  
 K 4 mmol/l ,  
 Cl 98 mmol/l ,  
 HCO<sub>3</sub> 17 mmol/l .

Which action is least appropriate?

Options

- A. Blood sugar estimation
- B. Urgent CT scan
- C. Infuse 1.26 NaHCO<sub>3</sub>
- D. Infuse IV normal saline
- E. Nurse in recovery position

No.: 72

C

A mixed metabolic and respiratory acidosis is common following seizures and will normally resolve spontaneously. It is appropriate to check blood sugar and nurse in the recovery position. Bicarbonate infusion could possibly worsen intracellular acidosis in the acute situation.





No.: 73

An 80-year-old Asian lady has been referred for investigation of 3 months anorexia and malaise. Her weight is 40 kg.

Investigations :

Na 133mmol/l ,

K 5.0 mmol/l ,

Urea 12 mmol/l ,

Creatinine 400 u.mol/l ,

HC03 14 mmol/l ,

Ca 1.92 mmol/l ,

P04 2.60 mmol/l ,

24hour urine creatinine 4 mmol/24 hour, urine volume 1 litre .

The Glomerular Filtration Rate (GFR) approximates to:

Options

A. 0-5 ml/min

B. 6-10 ml/min

C. 11-15 ml/min

D. 16-20 ml/min

E. > 20 ml/min

No.: 73

B

Creatinine clearance is calculated using the formula  $UV/P$  which here is  $4000 \times 1/400 = 10$  litres/day which is 6.9 ml/min (multiply by 1000 (to convert to ml) and divide by 1440 (the number of minutes in 24 hours) .

U = urine creatinine (umol/l) ,

V = urine volume (litres) ,

P = plasma creatinine (umol/l).

No.: 74

A 68-year-old Caucasian man with a 15 year history of well controlled hypertension presents with anorexia and weakness. Blood pressure 180/110 mmHg. Fundal examination Grade 2 changes. Urinalysis ++ protein, blood negative. Urea 45 mmols/l. Creatinine 560  $\mu$ mols/l. Calcium corrected 2.9 mmols/l. Haemoglobin 6.5 g/l. MCV 89 fl. 24 hour urine creatinine 8 mmols. 24 hour urine protein 2.3 grams/24 hrs. Ultrasound 2 normal sized non obstructed kidneys .

Which is the most likely diagnosis?

Options

A. Goodpasture's disease

B. Renovascular disease

C. Renal limited vasculitis

D. Myeloma

E. Primary hyperparathyroidism

No.: 74

D

Goodpasture's and vasculitis are unlikely without haematuria. For renovascular disease to cause renal failure like this the kidneys are likely to be small. Although primary hyperparathyroidism with severe hypercalcaemia could rarely cause renal failure the degree of hypercalcaemia is insufficient to cause significant renal impairment. The calcium usually decreases in renal failure (less 1,25 OH vit D) unless there is tertiary hyperparathyroidism (usually occurs after a number of years at end-stage renal failure), the patient is on Ca/Vit D supplements or there is myeloma or other malignancy. Myeloma is also one of the list of causes of chronic renal failure with normal size kidneys (others diabetes, amyloid, APKD, hydronephrosis) and is the most likely cause here.



No.: 75

A 30-year-old garage mechanic presents with a 6 week history of generalised malaise, fever, cough and intermittent haemoptysis .

Investigations :

Hb 7.5 g/dl ,  
MCV 76 fl ,  
WCC  $8 \times 10^7$  ,  
MCH 28 pg ,  
Urea 15 mmol/l .  
Urine > 50 rbc ,  
red cell casts seen .

Lung function :

Actual FEV1 2.6 ,  
)Predicted 3.0) ,  
FVC 2.9 (predicted 4.2) ,  
TLC 5.1 (predicted 6.5) ,  
KCO 2.8 (predicted 2.2) .

The anaemia is most likely caused by:

Options

- A. Relative EPO deficiency
- B. Haemolysis
- C. Pulmonary haemorrhage
- D. Occult GI bleeding
- E. Aluminium toxicity

No.: 75

The most likely diagnosis is a pulmonary/renal small vessel vasculitis (either Wegener's or Microscopic polyangiitis). In view of the relatively slow onset anti-GBM disease is less likely. Pulmonary haemorrhage is classical and is associated with an iron-deficiency anaemia and raised KCO and diffuse alveolar shadowing on CXR.

No.: 76

A 30-year-old garage mechanic presents with a 6 week history of generalised malaise, fever, cough and intermittent haemoptysis .

Investigations: Hb 7.5 g/dl, MCV 76 fl, WCC  $8 \times 10^7$ , MCH 28 pg, Urea 15 mmol/l. Urine > 50 rbc, red cell casts seen. Lung function: Actual FEV1 2.6, (Predicted 3.0), FVC 2.9 (predicted 4.2), TLC 5.1 (predicted 6.5), KCO 2.8 (predicted 2.2) .

The following diagnosis is most likely?

Options

- A. Wegener's Granulomatosis
- B. Berger's disease
- C. Mesangio-capillary glomerulonephritis
- D. Microscopic polyangiitis
- E. Chronic hypertensive nephropathy

No.: 76

The patient has a nephritic illness associated with pulmonary haemorrhage. The most likely cause is microscopic polyangiitis which is a small vessel, usually pANCA positive vasculitis which predominantly affects the kidney (crescentic GN) and lungs (pulmonary haemorrhage) but can also affect many different organs. Wegener's is a closely related small vessel ANCA positive vasculitis but is usually characterised by upper respiratory tract involvement of which there was no mention in this particular case .

Goodpasture's disease is also a possibility but it is much less common than small vessel vasculitis.

No.: 77



This man has a painful knee. What is the diagnosis?

Options

- A. Reactive arthritis
- B. Plant thorn synovitis
- C. Lyme disease
- D. Syphilis
- E. Gonococcal arthritis

No.: 77

E

This lesion is typical of that seen in gonococcal infection. Gonococcal dermatitis may manifest as maculopapular, vesicular or pustular lesions on an erythematous base. The dermatological manifestation of reactive arthritis is keratoderma blenorrhagica. Lyme disease produces erythema chronicum migrans and this is not a syphilitic chancre. Plant thorn synovitis occurs when part of a thorn becomes retained within a joint space leading to a reactive synovitis. There is no rash.

No.: 78

An eighteen year old student becomes unwell with a sore throat, low grade fever and has some cervical lymphadenopathy. On consulting his GP 3 days after the onset of this illness, examination is otherwise unremarkable Investigations :

FBC normal :

sodium 137, potassium 4.1, urea 10.1, creatinine 141

C3 1.31g/l (0.55-1.20) C4 0.42g/l (0.20-0.50) CH50 87% (50-110)

urinalysis:blood 3+ protein + few red cell casts .

What is the most likely diagnosis:

Options

- A. Post streptococcal glomerulonephritis
- B. Wegener's granulomatosis
- C. IgA nephropathy
- D. Interstitial nephritis
- E. Henoch Schonlein purpura

No.: 78

C

IgA nephropathy (Berger's disease) typically affects young adult males and immediately follows a viral infection or may have no clear precipitating factor. Prognosis is good, 10% develop renal failure. Post-strep GN normally follows a URTI after 2-3 weeks and is associated with a low C3 and complement consumption whereas C3 is normal/high in IgA nephropathy. Proteinuria rather than haematuria is more common in PSGN .

There is no history of antibiotics or NSAIDs for interstitial nephritis and no history of arthralgia or purpura for HSP.



No.: 79

In acute renal impairment which of the following would be compatible with a pre-renal rather than renal cause:

Options

- A. Urine sodium >20mmol/l
- B. Urine osmolality >500mosm/kg
- C. PH <7.1
- D. Urea >20mmo/l
- E. Red cell casts on microscopy of urinary sediment

No.: 79

B

In pre-renal failure renal hypoperfusion reduces the GFR thereby stimulating the renin-angiotensin-aldosterone system. This results in the production of small volumes of concentrated urine with a low sodium concentration.

-	Pre-renal	renal
urine sodium:	<10mmol/l	>20mmol/l
urine osmolality:	>500mosm/kg	<300mosm/kg
urine:plasma urea:	>8:1	<3:1
u:p osmolality:	>1.5:1	<1.1:1
urea:creatinine:	>20:1	<10:1

No.: 80

A 19-year-old patient of the psychiatric unit develops acute pain and swelling of his left foot. He is mentally retarded with a history of self-mutilation. The following results are obtained :

sodium 142 ,  
 potassium 4.6 ,  
 urea 18.7 ,  
 creatinine 387  
 ESR 87mm 1st hour ,  
 CRP 78g/l ,

ANA + speckled pattern 1:80

X-ray of foot shows soft tissue swelling and calcification and punched out erosions on the joint margin  
 what is the most likely diagnosis?

Options

- A. Lithium toxicity
- B. Acute interstitial nephritis secondary to indomethacin
- C. Lesch-Nyhan syndrome
- D. Gout nephropathy
- E. SLE

No.: 80

C

The patient is too young for ordinary gout. SLE does not cause an erosive arthritis. Lesch-Nyhan syndrome has a defect in uric acid metabolism (hypoxanthine-guanine-phosphoribosyl transferase) leading to chronic hyperuricaemia leading to renal failure and gouty tophi. The radiographic description is classical for that of gout.





<p>No.: 81</p> <p>Which of the following results, in a patient with SLE, is the least predictive for the development of lupus nephritis:</p> <p>Options</p> <p>A. High titre anti-dsDNA antibodies B. High titre Sm antibodies C. Positive anti-C1q antibodies D. Low C4 levels E. ANA&gt;1/640 speckled pattern</p>	<p>No.: 81</p> <p>E</p> <p>The ANA titre is the least predictive and the speckled pattern is non-specific. If all the other factors are present the patient is virtually guaranteed to develop lupus nephritis.</p>
<p>No.: 82</p> <p>Which of the following conditions with renal involvement is the most likely to have normal complement levels:</p> <p>Options</p> <p>A. Grade IV lupus nephritis B. Post-streptococcal glomerulonephritis C. Subacute bacterial endocarditis D. Type II cryoglobulinaemia E. IgA nephropathy (Buerger's disease)</p>	<p>No.: 82</p> <p>E</p> <p>Primary membranous nephropathy and Buerger's disease can have normal complement levels. The other conditions are all associated with activation of the classical complement pathway and immune complex formation.</p>
<p>No.: 83</p> <p>Which of the following is atypical for Goodpastures syndrome:</p> <p>Options</p> <p>A. Iron deficiency anaemia B. Linear deposition of immunoglobulin along the basement membrane C. An increase in DLco D. Young female patient E. Pulmonary haemorrhage occurring 6 weeks before onset of nephritis</p>	<p>No.: 83</p> <p>D</p> <p>Anti-GBM disease is where autoantibodies against type IV collagen induce RPGN and crescentic GN. 50-70% of patients have lung haemorrhage. Alveolar haemorrhage and anti-GBM nephritis is referred to as Goodpasture's syndrome .</p> <p>Bimodal peak of incidence; 5-40 years M:F 6:1 and sixth decade M:F 1:1(lung haemorrhage uncommon) .</p> <p>There is commonly a history of cigarette smoking, recent URTI or solvent exposure .</p> <p>Anti-GBM disease presents with haematuria, nephritic urinary sediment, subnephrotic proteinuria and rapidly progressive renal failure .</p> <p>Rx: immunosuppression and plasmapheresis</p>

No.: 84



Which of the following is not a possible cause - :

Options

- A. Renal Tubular Acidosis
- B. Hyperparathyroidism
- C. Cystinuria
- D. Gout
- E. Hyperoxaluria

No.: 84

D

It shows a KUB X-ray :

\*Opaque stones: calcium phosphate, oxalate

\*Poorly opaque: cystine

\*Non-opaque: uric acid, xanthine

\*Calcium-containing stones :

normocalcaemia: UTI, RTA, horseshoe kidney

hypercalcaemia: HPTH, milk-alkali, sarcoid, XS vit D

No.: 85

Three weeks post renal transplant the following results were obtained in a 16-year-old female patient whose original disease was focal segmental glomerulosclerosis (FSGS) .

Na 130,  
K 6.8,  
HCO<sub>3</sub> 13,  
Cl 124,  
Ur 12,  
Creat 175,  
Mg 0.4

The most likely diagnosis is :

Options

- A. Recurrent FSGS
- B. Azathioprine toxicity
- C. Acute vascular rejection
- D. Cyclosporin toxicity
- E. CMV infection

No.: 85

D

Although FSGS commonly recurs in transplants this is a little too early. Azathioprine hepatitis, pancreatitis, peripheral neuropathy but not the above. Acute vascular rejection presents with fever, pain over the graft and renal failure. Cyclosporin causes a type IV RTA (ie with hyperkalaemia) and magnesium wasting (hence hypomagnesaemia), hypertension and nephropathy as well as its other side effects and is the most likely diagnosis.



No.: 86

A 42-year-old man presented with a rash predominantly on his fingers and nose .

Na 140,

K4,

Ur 12,

Creat 222

Urine 1.4 grams/24 hours proteinuria.

Dipstick ♦ Prot +, Blood ++

ANA negative, ANCA negative

C3 normal, C4 low

Serum protein electrophoresis: protein band 3g/l

The most likely diagnosis is :

Options

- A. Henoch Schonlein Purpura
- B. Microscopic polyarteritis
- C. Cryoglobulinaemic vasculitis
- D. SLE
- E. Coeliac disease

No.: 86

C

Cryoglobulins are immunoglobulins that precipitate reversibly in the cold. They are associated with a small vessel vasculitis, a rash predominantly on the extremities, raynaud's and mesangiocapillary glomerulonephritis with typically low C4, normal C3. Plasma cell dyscrasias cause a type I (monoclonal) cryoglobulinaemia. Hepatitis C is the most common cause of polyclonal cryo (was previously called mixed essential cryoglobulinaemia). SLE and microscopic polyarteritis are unlikely as ANA and ANCA are negative and the rash distribution is typical for cryo rather than HSP.





No.: 87

A 28-year-old man presents acutely with pleuritic left sided chest pain but no cough or haemoptysis. He also complained of right knee and ankle swelling and pain which he had noticed on and off for the last 8 years. He was otherwise well .

O/E temperature 39 centigrade .

Creat 66 µ  
WBC 13 µ  
ESR 60 µ  
CRP 150 µ  
CXR normal

Urine Protein +++++

Blood nil

The most likely underlying diagnosis is :

Options

- A. SLE
- B. Bacterial endocarditis
- C. Familial Mediterranean Fever
- D. Hodgkin's lymphoma
- E. HIV disease

No.: 87

C

#### AMYLOID

% 0.8 □ 0.5 of autopsies

Related to prolonged, high intensity inflammation (raised CRP, ESR, Serum amyloid A (SAA) Can be secondary to :

✓ Chronic Inflammatory conditions

RhA, juvenile arthritis, Still's 50%

Familial Mediterranean Fever

Ankylosing spondylitis

Psoriatic arthropathy

Crohn's

✓ Chronic Infections

Bronchiectasis

Chronic Osteomyelitis

Chronic infected ulcers (eg IV drug users)

#### Clinical Features

Renal - >90%, mainly glomerular deposition ♦ proteinuria/nephrotic syndrome, CRF

Gastrointestinal

Cardiac ♦ restrictive cardiomyopathy (10%)

Hepatosplenomegaly

Hypoadrenalism

#### Prognosis

4 %50year survival untreated but treatment can stabilise or improve amyloid load

#### Diagnosis

Radiolabelled SAP scan

Biopsy ♦ skin, abdominal fat pad, rectal, renal (but increased risk of bleeding) ♦ apple green birefringence of congo red stained tissue on polarised light microscopy, immunofluorescence using antiSAA .

#### Treatment

FMF ♦ Colchicine

RhA ♦ chlorambucil, cyclophosphamide

Newer specific treatments

AL AMYLOID Usually secondary to :

Myeloma

Monoclonal gammopathy

Waldenström's macroglobulinaemia

#### Clinical Features

Cardiac - restrictive cardiomyopathy, conduction system delay (50%)

Renal (about 50%)

Bleeding (Factor X deficiency, capillary fragility)

Neuropathy ♦ peripheral and autonomic

Hepatosplenomegaly

Gastrointestinal (reduced motility, bacterial overgrowth (□

Macroglossia

Skin, joint involvement

Thyroid nodules

Prognosis - Mean 18/12 survival

#### Treatment

Prednisolone + melphalan +/- colchicine

Full Chemotherapy for myeloma

Myeloablative therapy and bone marrow transplantation .

#### Other forms of amyloidosis

B2 microglobulin-related amyloid ♦ occurs following long term haemodialysis .Causes skin and joint symptoms, carpal tunnel syndrome.

Familial amyloid polyneuropathy ♦ due to transthyretin (prealbumin) mutation ♦ causes neuropathy and cardiac problems. May be treated by liver transplantation (transthyretin is synthesised by the liver)

#### FAMILIAL MEDITERRANEAN FEVER

Autosomal recessive inheritance. MEFV gene on Chr 16 codes for pyrin (marennostin) .

Occurs predominantly in Sephardi Jews, Turks, Armenians etc

Clinically ♦ episodes of acute onset of pain (serositis) and fever lasting 1-3 days

Peritonitis (mimicks acute abdomen)

Pleuritis

Synovitis (large joint oligoarthritis)

Pericarditis

Raised inflammatory markers (CRP, SAA, ESR)

Diagnosis ♦ clinical criteria, MEFV gene mutation testing, metaraminol provocation testing





No.: 1

A 26-year-old woman presents with anaemia, jaundice and a reticulocytosis. She has recently had a viral infection and her father had a similar problem. What is the most likely diagnosis :

Options

- A. Auto-immune haemolytic anaemia
- B. Hereditary spherocytosis
- C. Glucose-6-phosphate dehydrogenase deficiency
- D. Paroxysmal nocturnal haemoglobinuria
- E. Hereditary elliptocytosis

No.: 1

B

Jaundice, anaemia and reticulocytosis imply a haemolytic anaemia. Polychromasia is consistent with the raised reticulocyte count and bite cells are characteristic of G6PD deficiency .

G6PDH catalyzes the synthesis of NADPH from the hexose monophosphate pathway. The NADPH is then used to reduce glutathione and hence in conjunction with glutathione reductase reduces cellular oxidative damage. G6PDH enzyme deficiency, caused by mutations in the X-linked (Xq28) G6PD gene, affects over half a billion people worldwide. It is a balanced polymorphism associated with resistance to *Falciparum malaria* in heterozygous females .

This evolutionary advantage outweighs the small negative effect of affected hemizygous males. At least 400 G6PD variants have been identified. The various mutations lead to altered expression of G6PD or an altered half-life of the enzyme .

There are a number of disease manifestations :

- \*patients may be asymptomatic
  - \*patients may present with neonatal jaundice
  - \*usually the deficiency manifests as haemolytic crises provoked by oxidising stress e.g. certain foods - fava bean, chemicals -naphthalene, certain drugs - dapsone, primaquine, chloroquine, aspirin (high doses), sulphonamides, nitrofurantoin, vitamin K and nalidixic acid. Infections can also provoke haemolysis .
- Haemolytic crises vary in severity .
- rarely chronic haemolysis may occur .
- If severe, G6PD deficiency can cause immunodeficiency by reducing the NADPH required for activation of the NADPH oxidase enzyme (cf. CGD) .

Autoimmune haemolytic anaemia and hereditary spherocytosis would both be associated with spherocytes rather than bite cells .

PNH is associated with intravascular haemolysis but red cell appearances are usually normal .

HUS is associated with a microangiopathic haemolytic anaemia and red cell fragmentation, thrombocytopenia and renal disease.



<p>No.: 2</p> <p>A 26-year-old woman presents with anaemia, jaundice and a reticulocytosis. She has recently had a viral infection and her father had a similar problem. What is the most likely diagnosis :</p> <p>Options</p> <p>A. Auto-immune haemolytic anaemia B. Hereditary spherocytosis C. Glucose-6-phosphate dehydrogenase deficiency D. Paroxysmal nocturnal haemoglobinuria E. Hereditary elliptocytosis</p>	<p>No.: 2</p> <p><b>B</b></p> <p>All of the answers cause haemolytic anaemia. Hereditary spherocytosis and G6PD deficiency are most likely to be precipitated by a viral infection. G6PD deficiency is an X-linked recessive condition so is less likely in a woman (although can occur). Auto-immune haemolytic anaemia is associated with anaemia and jaundice and is more common in women than men, but is not precipitated by a viral infection. Paroxysmal nocturnal haemoglobinuria is associated with a haemolytic anaemia but is not precipitated by viral infections. It is often associated with leucopenia and thrombocytopenia. Hereditary elliptocytosis is a mild membrane disorder and is rarely associated with clinically significant haemolysis.</p>
<p>No.: 3</p> <p>An unwell 32-year-old woman presents to the Accident and Emergency (A&amp;E) department with a history of headaches and fever .</p> <p>Her blood tests reveal the following results :</p> <p>Hb 10.9 g/dl WBC 15 x 10<sup>9</sup>/l plt 12 x 10<sup>9</sup>/l Clotting screen is normal</p> <p>What is the most likely diagnosis :</p> <p>Options</p> <p>A. Haemolytic uraemic syndrome B. Auto-immune thrombocytopenia purpura C. Acute myeloid leukaemia D. Thrombotic thrombocytopenia purpura E. Disseminated intravascular coagulation</p>	<p>No.: 3</p> <p><b>D</b></p> <p>Thrombotic thrombocytopenia purpura (TTP) is characterized by fever, neurological symptoms, microangiopathic haemolysis and thrombocytopenia. Clotting screen and renal function are usually normal .</p> <p>Haemolytic uraemic syndrome (HUS) is part of the same disease spectrum, however neurological symptoms are less common and renal disease is invariably present .</p> <p>Auto-immune thrombocytopenia purpura (ITP) is characterized by thrombocytopenia, but the patient is not usually anaemic (unless bleeding) and fever and headache would not be characteristic .</p> <p>Acute myeloid leukaemia (AML) may be associated with anaemia, thrombocytopenia and a raised white count. The patient may be febrile, but a headache would not be characteristic and the white count would usually be higher .</p> <p>Disseminated intravascular coagulation(DIC) is associated with thrombocytopenia and may be associated with a fever, but the clotting screen is almost always abnormal.</p>



No.: 4

A 35-year-old woman presents at week 24 in her third pregnancy with a deep venous thrombosis. She had pre-eclampsia in her first pregnancy and a miscarriage at ten weeks in her second. Her mother had a post-operative DVT at the age of 45 years .

FBC Hb 9.6g/dl

MCV 74fl

wbc  $9.4 \times 10^9/l$ plts  $200 \times 10^9/l$ 

Haemoglobin electrophoresis is normal

HbA2 2.8% (normal &lt;3.5%)

DAT positive

Reticulocyte count  $120 \times 10^9/l$  (25-125)

APTT 47 secs (normal 28-38 secs)

APTT mix (50% patient, 50% normal, incubated for 1 hour) 45 secs

PT 14 secs (normal 13-16 secs)

Antithrombin activity 0.58 iu/ml (0.8-1.2)

Protein C activity 0.85 iu/ml (0.67 - 1.38)

Total protein S 72% (64-154)

The patient is commenced on low molecular weight heparin, and then on oral warfarin. After 10 days she presents with bruising. INR 2.1; plts  $12 \times 10^9/l$ . What is the most likely explanation for this patient's anaemia?

Options

A. B thalassaemia trait

B. Iron deficiency

C. Dilutional anaemia of pregnancy

D. Folate deficiency

E. Autoimmune haemolytic anaemia

No.: 4

B

This patient has primary anti-phospholipid syndrome, and has two clinical criteria (venous thrombosis and pregnancy morbidity) plus a probable lupus anticoagulant as demonstrated by the prolonged aPTT which does not correct on mixing. Other clinical features include thrombocytopenia, migraine and positive DCT. Treatment of thrombosis is with anticoagulation and treatment of pregnancy failure is with aspirin and heparin .

The most likely cause of a microcytic anaemia with a normal HbA2 is iron deficiency. A thalassaemia trait would be another possibility. Autoimmune haemolysis is less likely with a normal reticulocyte count .

Heparin induced thrombocytopenia classically occurs at day 10 after heparin exposure. It can occur with both unfractionated and low molecular weight heparin. It can be associated with thrombosis. Treatment is by stopping heparin. As INR is therapeutic in this case warfarin can straight-forwardly be continued. If INR is not therapeutic, danaparoid or hirudin could be used as alternatives.





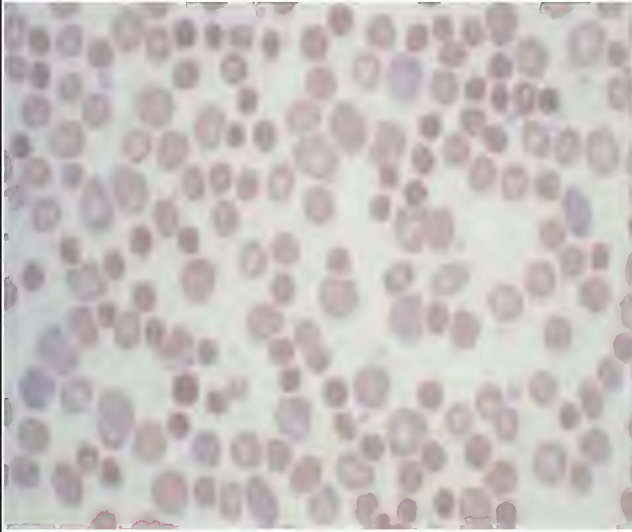
<p>No.: 5</p> <p>A 75-year-old man presents with increasing cervical lymphadenopathy .  Hb 9.6g/dl  MCV 85fl  WBC 27 x 10<sup>9</sup>/l  Neuts 28%  Lymphs 64%  Retics 3.5%  plt's 87 x 10<sup>9</sup>/l  Blood film Numerous spherocytes, polychromasia and smear cells  Alkaline phosphatase 94 iu/l  Bilirubin 38umol/l</p> <p>What is the best treatment option for the disease the patient is suffering from?</p> <p>Options</p> <p>A. Chlorambucil therapy  B. Melphalan therapy  C. Blood transfusion  D. Autograft  E. Combination chemotherapy</p>	<p>No.: 5</p> <p>A</p> <p>Chronic lymphocytic leukaemia comprises 25% of all leukaemia and is mainly a disease of the elderly. There is an accumulation of mature lymphocytes in the peripheral blood. Clinically they are often asymptomatic at diagnosis, but may present with lymphadenopathy, hepatosplenomegaly, increased risk of infection or autoimmune haemolytic anaemia (10-15%). The haemolytic anaemia is associated with a reticulocytosis, spherocytes and positive Coombs test. Treatment of AIHA is with oral prednisolone. Treatment of CLL in a patient of this age, if they have progressive disease, would be with oral chlorambucil or cyclophosphamide.</p>
<p>No.: 6</p> <p>A 76-year-old woman presents with abdominal pain .  Hb 10.5g/dl  WBC 19 x10<sup>9</sup>/l  plt's 75 x 10<sup>9</sup>/l  MCV 84fl  Blood film shows nucleated red cells, small numbers of promyelocytes, myelocytes and metamyelocytes</p> <p>What is the most likely cause of these haematology results?</p> <p>Options</p> <p>A. Thalassemia major  B. Megaloblastic anaemia  C. Myelodysplasia  D. Bone marrow infiltration with carcinoma  E. Osteopetrosis</p>	<p>No.: 6</p> <p>D</p> <p>Blood film findings describe a leucoerythroblastic blood picture which is characterised by granulocyte and erythroid precursors in the peripheral blood. Common causes include myelofibrosis or bone marrow infiltration with leukaemia or carcinoma. Other causes include bone marrow granulomas, storage disorders, severe megaloblastic anaemia, sickle cell crisis, thalassemia major, osteopetrosis and severe infection.</p>





<p>No.: 7</p> <p>A 35-year-old man has an appendicectomy. 48 hours later he becomes febrile, hypotensive and unwell . Hb 12.8g/dl WBC 19.4 x 10<sup>9</sup>/l plt's 48 x 10<sup>9</sup>/l Blood film shows a neutrophilia</p> <p>Which of the following investigations is the most likely to confirm the diagnosis?</p> <p>Options</p> <p>A. Clotting screen B. Mid stream urine sample C. Abdominal X-ray D. Liver function tests E. Urea and electrolytes</p>	<p>No.: 7</p> <p>A</p> <p>Disseminated intravascular coagulation is caused by inappropriate and excessive activation of the haemostatic system. Clinically it presents with bleeding or less commonly with microthrombotic lesions. 60% are caused by gram-negative sepsis. Other causes include protozoal or viral infections, metastatic carcinoma, leukaemia, obstetric causes, extensive surgical trauma and burns. APTT, PT and TT are all prolonged, platelets and fibrinogen are low, D-dimers/FDPs are high. Treatment is of underlying causes and by control of the haemorrhagic state. Platelets, blood, cryoprecipitate and fresh frozen plasma may all be required.</p>
<p>No.: 8</p> <p>This freshly prepared blood film is from a 45-year-old man with breathlessness. This appearance due to :</p> <p>Options</p> <p>A. Autoimmune haemolysis B. G6PD deficiency C. Homozygous sickle cell disease D. Haemoglobin SC disease E. Storage artefact</p>	<p>No.: 8</p> <p>C</p> <p>Sickle cell disease is due to a point mutation in the <math>\alpha</math>-globin gene resulting in poorly soluble haemoglobin . it is an autosomal recessive disorder . the homozygous - HbSS types have the disease with all the manifestations. The heterozygous type - HbAS have sickle cell trait - so they develop symptoms in hypoxic conditions - high altitude or under GA. A sickling test can be used to screen for people with sickle cell trait .</p> <p>The main complications are due to small vessel occlusion by sickled cells and include :</p> <ul style="list-style-type: none"> <li>*Bony infarction and pain</li> <li>*Stroke</li> <li>*Chest crisis</li> <li>*Sequestration crisis</li> <li>*Pneumococcal sepsis (asplenia)</li> <li>*Osteomyelitis, esp. Salmonella</li> <li>*Renal failure</li> <li>*Priapism</li> <li>* Leg ulcers</li> </ul>

No.: 9



This 20-year-old man has jaundice when he is ill. What is the diagnosis :

Options

- A. G6PD deficiency
- B. Gallstones
- C. Viral hepatitis
- D. Hereditary spherocytosis
- E. Gilbert's syndrome

No.: 9

D

Hereditary spherocytosis is due to a red cell membrane disorder in which red cells are more susceptible to splenic destruction. Increased haemolysis is seen during episodes of stress, such as infection. It is inherited, generally, in an autosomally dominant fashion .

Other causes of spherocytosis include :

- Autoimmune haemolysis (warm)
- Transfusion reactions
- ABO disease of the newborn
- Clostridium welchii sepsis



No.: 10



This 33-year-old man has sickle cell disease. What is his hip pathology due to :

Options

- A. Traumatic fractures
- B. Avascular necrosis
- C. Osteomyelitis
- D. Congenital hip dislocation
- E. Filariasis

No.: 10

B

Avascular necrosis is a recognised complication of sickle cell disease .

Other causes of avascular necrosis include :

- steroids
- Gaucher's disease
- Immune vasculitides

No.: 11



These X-rays are from a 5-year-old from Calcutta. What is the diagnosis :

Options

- A. Osteomalacia
- B. Rickets
- C. Osteoporosis
- D. Thalassaemia major
- E. Osteogenesis imperfecta

No.: 11

D

Thalassaemia major is inherited in an autosomally recessive fashion and is due to reduced or absent production of  $\alpha$  chains. It is most common in people from India and the Mediterranean .

Treatment involves life-long transfusion and iron chelation. Inadequate transfusion leads to bone marrow expansion and skeletal deformities as well as hepatosplenomegaly due to extramedullary haemopoiesis.



No.: 12



What are these appearances due to :

Options

- A. Hypercholesterolaemia
- B. Amyloidosis
- C. Iron deficiency anaemia
- D. Pernicious anaemia
- E. Acromegaly

No.: 12

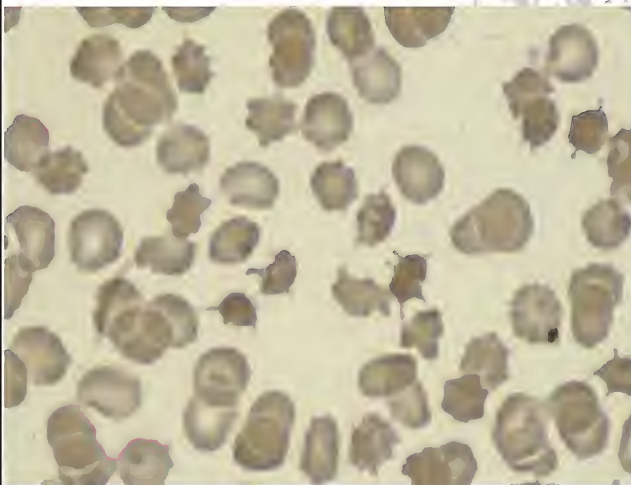
B

Amyloidosis is due to deposition of abnormal  $\beta$  pleated proteins in tissues. Its main causes are :

- ?Inherited
- ?Plasma cell dyscrasia producing a paraprotein (AL)
- ?Chronic inflammation (AA)

Cardiac, pulmonary and renal infiltration are the main causes of mortality.

No.: 13



In what condition are these changes not seen :

Options

- A. Abetalipoproteinaemia
- B. McLeod phenotype
- C. Zieve's haemolysis
- D. Haemoglobin Lepore
- E. Anorexia nervosa

No.: 13

D

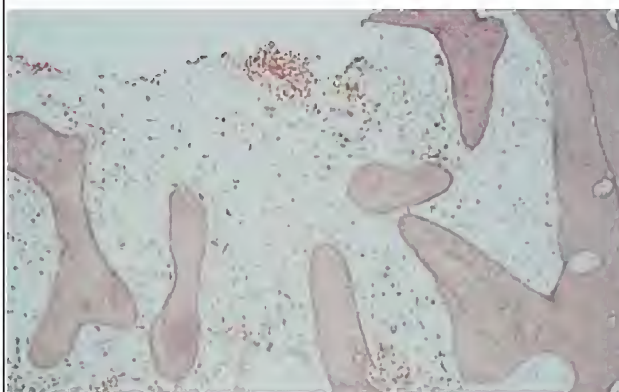
Haemoglobin Lepore is a  $\beta$  chain variant .

Acanthocytes are found in :

- ?Hereditary abetalipoproteinaemia
- ?Hereditary hypobetalipoproteinaemia
- ?McLeod phenotype
- ?Anorexia nervosa
- ?Hyposplenism
- ??Spur cell? or Zieve's haemolytic anaemia, associated with alcoholic cirrhosis.



No.: 14



This patient presented with bleeding and pancytopenia. What is the diagnosis :

Options

- A. Aplastic anaemia
- B. Disseminated tuberculosis
- C. Gaucher's disease
- D. Myelodysplasia
- E. Acute myelofibrosis

No.: 14

A

Aplastic anaemia is defined as pancytopenia due to marrow replacement by fatty tissue. The most important prognostic factor is the neutrophil count,  $0.5 \times 10^9/L$  being the threshold. Treatment is with immune suppression, such as ALG or cyclosporin. 60-70% of patients respond to the 1st course and enter remission.

No.: 15



This 30-year-old man has intermittent abdominal pain and jaundice. What is the diagnosis :

Options

- A. Renal calculi .
- B. Budd-Chiari syndrome .
- C. Paroxysmal nocturnal haemoglobinuria .
- D. Carcinoma of the bladder .
- E. Gallstones.

No.: 15

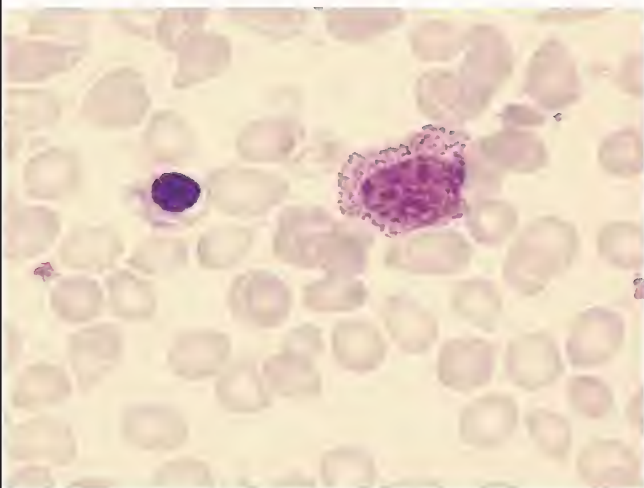
C

Paroxysmal nocturnal haemoglobinuria (PNH) is an acquired clonal disorder in which red blood cells have an increased sensitivity to complement lysis. Clinically, it is characterised by a triad of haemolysis, haemoglobinuria and thrombosis. It is often associated with aplastic anaemia .

Haemoglobinuria is also seen in :

- G6PD deficiency
- Paroxysmal cold haemoglobinuria
- ABO mismatched transfusions
- Mechanical haemolysis
- Malaria (Blackwater fever)
- Microangiopathic haemolytic anaemias (TTP, DIC, HUS)

No.: 16



What is the diagnosis?

Options

- A. Acute myeloid leukaemia
- B. Leucoerythroblastic film
- C. Thalassemia major
- D. Haemoglobin E disease
- E. Liver disease

No.: 16

B

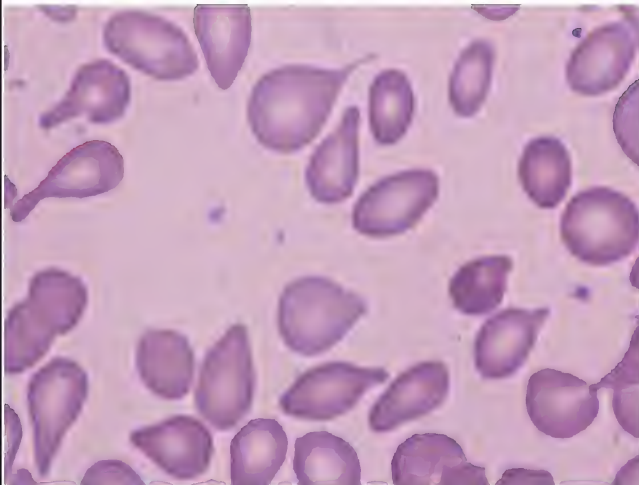
This is a leucoerythroblastic film in which nucleated red cells and early myeloid precursors can be seen .

Main causes are :

- \*Marrow infiltration: carcinoma, amyloid
- \*Haematological malignancies: myeloma, lymphoma
- \*Metabolic diseases: Gaucher's
- \*Infections: TB, fungal
- \*Severe blood loss
- \*Transient hypoxia
- \* Marrow necrosis



No.: 17



Which of the following do not cause these appearances :

Options

- A. Myelofibrosis
- B. Megaloblastic anaemia
- C. Thalassemia
- D. Haemolytic anaemia
- E. Sickle cell disease

No.: 17

E

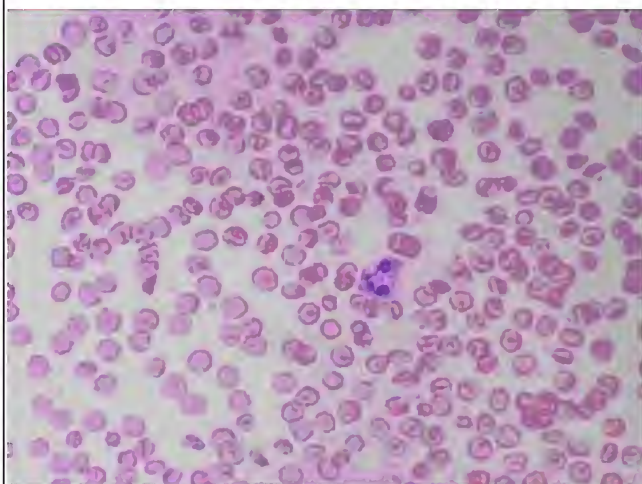
Sickle cell disease .

All the other are known causes of teardrop poikilocytes.  
Other causes include marrow infiltration due to carcinoma and myelodysplasia.





No.: 18



Which of the following do not cause this appearance :

Options

- A. Liver disease
- B. Haemoglobin SC disease
- C. Iron deficiency
- D. Haemochromatosis
- E. Haemoglobin D disease

No.: 18

D



No.: 19

A 55-year-old woman presents with a swollen calf. You suspect that she has a deep vein thrombosis (DVT). Which of the following statements is true?

Options

- A. Compression ultrasonography of the lower limb has a sensitivity for DVT of 80%
- B. D-dimer assays have a low positive predictive value (PPV) and a high negative predictive value (NPV) for DVT
- C. D-dimer assays are equally sensitive for PE as for DVT
- D. Allowing the clinician to override the clinical probability score does not improve its performance
- E. If the clinical probability of DVT is high but the D-dimer assay is low radiological investigation should not be requested

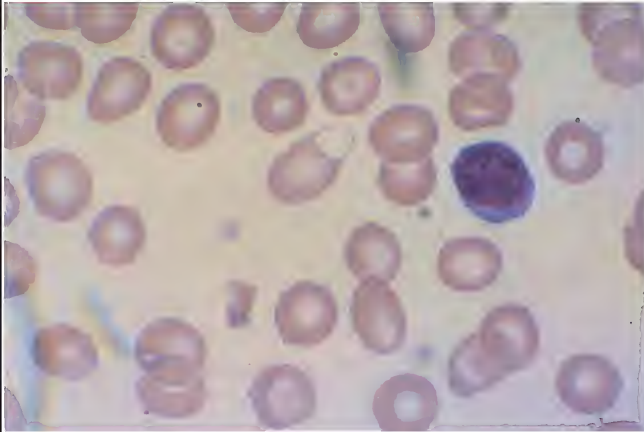
No.: 19

B

The vast majority of patients suspected of having DVT turn out to have an alternative diagnosis. Numerous attempts have been made to improve diagnostic efficiency in these patients and many hospitals in the U.K. now have diagnostic algorithms. These usually start with a clinical probability score and perhaps surprisingly it appears that allowing the clinician to override an objective score is of benefit. D-dimer assays have a high sensitivity but a low specificity for venous thrombosis as the fibrin they recognise can be found in many conditions. They are therefore of most use as a negative predictive tool in combination with a clinical probability score. Many algorithms do not use D-dimer assays when the clinical probability is high as the NPV drops in this setting making it more sensible to proceed straight to radiological investigation. They are less sensitive for PE than DVT. Although phlebography remains the radiological gold standard, ultrasonography has a sensitivity of 97% for proximal DVT.



No.: 20



A 35-year-old woman presents to the A+E department with extreme tiredness and dyspnoea. She has just returned from Africa and started taking anti-malarials for the first time a few days ago. She is jaundiced and her FBC shows Hb 6 g/dl; WCC  $12 \times 10^9/l$ ; Plats  $150 \times 10^9/l$ . She is afebrile and has clear urine. Her film shows some hemoglobin and bite cells (see image). What is the most likely diagnosis?

Options

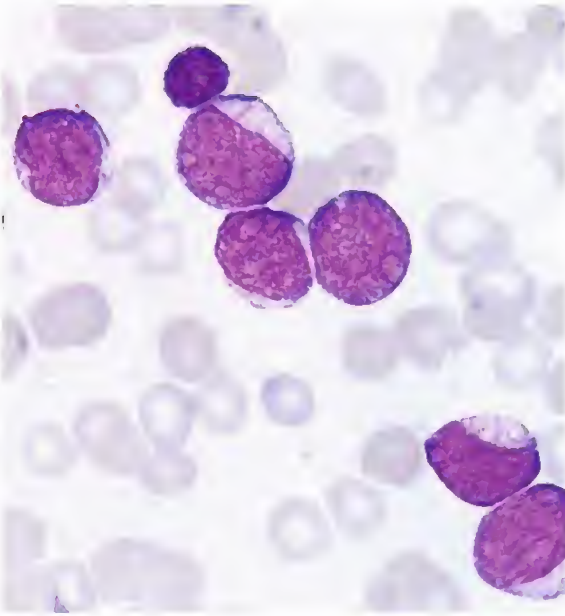
- A. Sickle cell disease
- B. Malaria
- C. Glucose-6-phosphate dehydrogenase deficiency
- D. Hereditary spherocytosis
- E. Autoimmune haemolytic anaemia

No.: 20

C

G6PD deficiency is X-linked but female carriers may have low levels of the enzyme and have haemolytic crises. Oxidative stress which is commonly due to drugs (e.g. chloroquine and primaquine) or classically ingesting fava beans results in precipitation of haemoglobin. This contracts away from the red cell membrane producing bite cells and when the precipitated proteins are removed in the spleen the resulting cells look as if they have been bitten.

No.: 21



A 22-year-old man has been feeling gradually unwell over the previous 8 weeks. He is now very tired and has noticed a rash on his body. He comes to A&E where his FBC shows Hb 8.4 g/dl; WCC  $45 \times 10^9/l$ ; Plts  $10 \times 10^9/l$ . His blood film is shown. What is the diagnosis?

Options

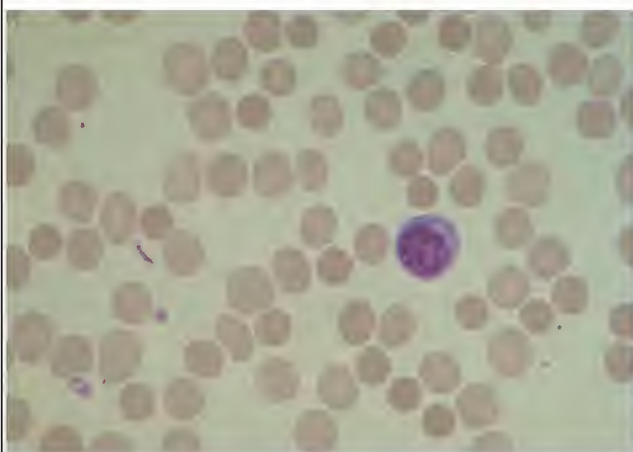
- A. Acute myeloid leukaemia
- B. Chronic myeloid leukaemia
- C. Acute lymphoblastic leukaemia
- D. Chronic lymphoid leukaemia
- E. Myelodysplastic syndrome

No.: 21

A

The film shows blasts one of which has an Auer rod. This is pathognomonic of acute myeloid leukaemia. In addition this is the most likely condition in a man of this age. Do not be put off by the presentation which may be sub-acute.

No.: 22



This 18-year-old Greek man presented with jaundice and abdominal pain. His FBC showed Hb 7 g/dl; WCC  $8 \times 10^9/l$ ; Plts  $200 \times 10^9/l$ ; MCV 85 fl. His blood film is shown. Which of the following diagnoses is most likely?

Options

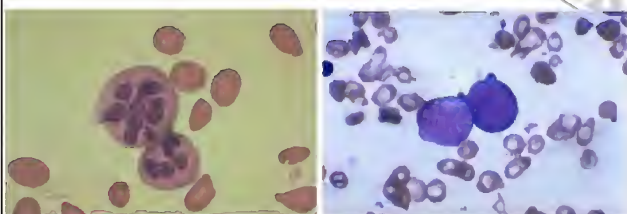
- A. Sickle cell disease
- B. Thalassaemia
- C. Iron deficiency
- D. Megaloblastic anaemia
- E. Hereditary spherocytosis

No.: 22

E

Almost all the red cells are spherocytes. These are round red cells without the normal central pallor. This is only seen in 2 conditions: autoimmune haemolytic anaemia (AIHA) or hereditary spherocytosis (HS). These may be distinguished by the direct anti-globulin test (DAT or Coombs test) which would be positive in AIHA. The osmotic fragility test would be positive in both but is the diagnostic test for HS. HS is autosomally dominant and can present after childhood. As with other haemolytic anaemias, gallstones are common. Recurrent haemolysis generally responds well to splenectomy.

No.: 23



A 45-year-old woman presents with gradual worsening dyspnoea. She has a past history of hypothyroidism. She is pale and mildly jaundiced. Her FBC shows Hb 6 g/dl; MCV 115 fl; WCC  $4 \times 10^9/l$ ; Plats  $85 \times 10^9/l$ . Her blood film is shown. What is the most likely diagnosis?

Options

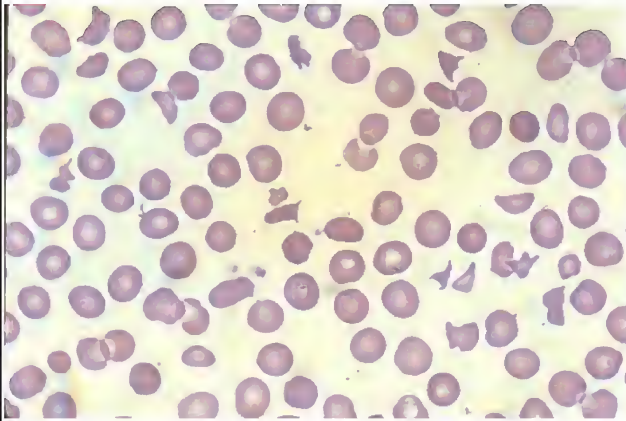
- A. Pernicious anaemia
- B. Myelodysplastic syndrome
- C. Acute myeloid leukaemia
- D. Autoimmune haemolytic anaemia
- E. Hypothyroidism

No.: 23

A

She has a marked macrocytosis which is only seen in myelodysplasia or a megaloblastic anaemia. Hypothyroidism could cause a pancytopenia with a mild macrocytosis. The film shows hypersegmented (more than 5 segments) neutrophils (which may be seen in MDS) and megaloblasts (large cells with blue cytoplasm and a central nucleus). Likely causes of her megaloblastic anaemia are pernicious anaemia or vitamin B12 deficiency. Folate deficiency is less common. Pernicious anaemia is an autoimmune condition and is more common in individuals with an autoimmune history.

No.: 24



This 37-year-old woman suddenly fainted at home. On admission she had a widespread petechial rash and was bleeding PR. Her results showed Hb 7 g/dl; WCC  $11 \times 10^9/l$ ; Plats  $5 \times 10^9/l$ . Her clotting screen was normal. She was pyrexial. Her blood film is shown. Which of the following diagnoses is most likely?

Options

- A. Aplastic anaemia
- B. Sepsis and disseminated intravascular coagulation
- C. Meningococcal septicaemia
- D. Thrombotic thrombocytopenic purpura
- E. Evan's syndrome (Auto-immune haemolytic anaemia and ITP)

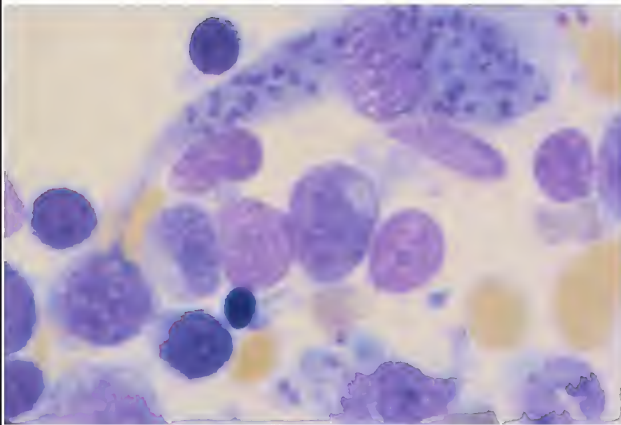
No.: 24

D

The film shows marked red cell fragmentation. This indicates a micro-angiopathy which can be seen in B and C but would then be associated with clotting abnormalities. TTP is classically a pentad of micro-angiopathy, thrombocytopenia, renal impairment, neurological manifestations and pyrexia. 3 out of 5 of these are considered sufficient to make the diagnosis.



No.: 25



A 65-year-old African man attends the OPD with LUQ pain. On examination he has splenomegaly. The FBC shows Hb 11.5 g/dl; WBC  $8 \times 10^9/l$ ; Plats  $150 \times 10^9/l$ . A bone marrow aspirate is shown. Which of the following diagnoses is most likely?

Options

- A. Myelofibrosis
- B. Leishmaniasis
- C. Malaria
- D. Chronic myeloid leukaemia
- E. Gaucher's disease

No.: 25

B

The aspirate shows a macrophage with classical Leishman Donovan bodies. These are the amastigotes which have a small irregular nucleus. They are slightly larger than platelets, which have no nucleus.

No.: 26

A 35-year-old man attends A&E with an acute chest infection. His FBC shows Hb 14.5 g/dl; WCC  $8.5 \times 10^9/l$ ; (Eosinophils  $3 \times 10^9/l$ ); plats  $180 \times 10^9/l$ . Which two of the following options could alone explain his FBC?

Options Choose 2

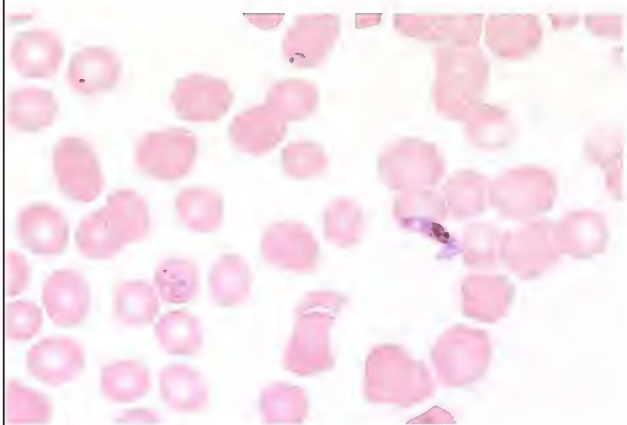
- A. HIV infection
- B. Chronic bronchitis
- C. Pneumococcal pneumonia
- D. Legionnaire's disease
- E. Previous splenectomy
- F. Hypothyroidism
- G. Psoriasis
- H. Malaria
- I. Smoking
- J. Atopic eczema

No.: 26

A J

Eosinophilia is commonly seen after chronic parasitic infection associated with tissue infiltration (e.g. schistosomiasis, strongyloides), drug hypersensitivity reactions or allergic diseases such as rhinitis or atopic eczema.

No.: 27



A medical student returns from elective in Africa with a PUO. Her blood film is shown. What is the infective agent?

Options

- A. Plasmodium vivax
- B. Plasmodium malariae
- C. Plasmodium falciparum
- D. Plasmodium ovale
- E. Babesia microti

No.: 27

C

*P. falciparum* has very fine rings compared with the thick rings of the other plasmodium species. Multiple rings in one red cell are uncommon in the other plasmodium species. *B. microti* looks very much like *P. falciparum* but is found in North America not Africa.

No.: 28

A 54-year-old woman undergoes a cholecystectomy which is complicated by a post-operative haemorrhage and she requires a 3-unit blood transfusion. Following transfusion her haemoglobin is 11.5 g/dl. Ten days later she has the following results :

Hb 7.5g/dl

WBC  $7.6 \times 10^9/l$ plt  $398 \times 10^9/l$ 

MCV 95fl

Bilirubin 68 $\mu$ mol/l

Direct Coombs test positive

Which of the following statements about this condition are true?

Options

- A. The patient would have had a positive Coomb's test before the transfusion
- B. It is more common in men than in women
- C. It is more common in multiply transfused patients
- D. It is due to an ABO blood group antigen mismatch
- E. The antibodies were naturally present in the patient

No.: 28

C

The most likely diagnosis is a delayed haemolytic transfusion reaction. These are due to incompatibilities in red cell antigens other than the ABO groups. The antibodies are acquired rather than naturally occurring, and hence occur in patients who have been pregnant in the past or who have had blood transfusion. The antibody level can decrease to a very low level so are undetectable on pre-transfusion screening. When stimulated by transfusion, antibody levels increase over 7-10 days to cause a delayed haemolytic transfusion reaction .

ABO incompatible transfusions cause acute intravascular haemolysis which can be associated with renal failure, DIC and death. Anti-A or anti-B antibodies are naturally occurring and should always be picked up on pre-transfusion screening. ABO incompatible transfusions usually occur because there has been an error and the wrong blood has been given to the wrong patient.

No.: 29



Which condition is most likely to cause this appearance :

Options

- A. Haemophilia
- B. Idiopathic thrombocytopaenic purpura
- C. Pneumococcal sepsis
- D. Massive deep venous thrombosis
- E. Disseminated intravascular coagulopathy

No.: 29

E

Disseminated intravascular coagulopathy is a reactive process in which clotting factors are consumed due to intravascular activation of the coagulation cascade .

It is commonly seen in :

- Meningococcal sepsis
- Obstetric complications
- Severe bacteraemia
- Snake bites
- Viral haemorrhagic fevers

No.: 30

A 25-year-old Greek woman has a FBC because of a chest infection. She has no significant past medical history. Her FBC shows: Hb 9 g/dl; MCV 55 fl; WCC 6 x 10<sup>9</sup>/l; Plats 190 x 10<sup>9</sup>/l .

Haemoglobin electrophoresis is suggested by the lab and reported as follows :

Hb A 94.5% (Normal > 96%)

Hb A2 4.5% (Normal <3.1%)

Hb F < 1% (Normal <1%)

What is the most likely cause of her microcytosis anaemia?

Options

- A. Alpha thalassaemia trait
- B. Beta thalassaemia trait
- C. Thalassaemia major
- D. Iron deficiency
- E. Sick cell disease

No.: 30





No.: 31

A 55-year-old man attends the chest clinic with intermittent dyspnoea. He has a number of current medical problems for which he is on various medications. Select 2 of the following factors which alone could explain his FBC result: Hb 19.3 g/dl; WCC  $8.5 \times 10^9/l$ ; Plats  $340 \times 10^9/l$ .

Options Choose 2

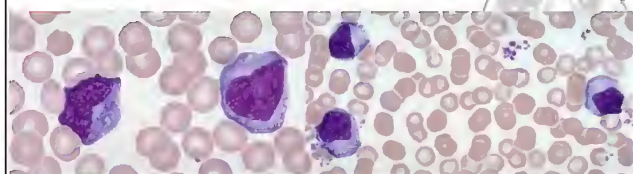
- A. Beta blocker therapy
- B. Nephritic syndrome
- C. Chronic asthma
- D. Diuretic therapy
- E. Obesity
- F. Alcohol abuse
- G. Mitral stenosis
- H. Coarctation of the aorta
- I. Treatment with ACE inhibitors
- J. Treatment with Phenytoin

No.: 31

D E

In secondary or apparent polycythaemia, the Hb may be extremely high and similar to the level commonly seen in primary polycythaemia. Important causes of an apparent polycythaemia (in which the red cell mass is normal) are hypertension, obesity, smoking and dehydration. Secondary polycythaemia is generally associated with chronic hypoxia (e.g. cyanotic heart disease) or an increase in erythropoietin levels (e.g. renal tumours or cysts).

No.: 32



An 18-year-old girl is admitted feeling unwell with a rash on her trunk. Her FBC shows Hb 13 g/dl; WCC  $1.0 \times 10^9/l$ ; Neuts  $0.5 \times 10^9/l$ ; Plats  $95 \times 10^9/l$ . She has cervical lymphadenopathy. What is the diagnosis from her blood film?

Options

- A. Hodgkin's disease
- B. Acute lymphoblastic leukaemia
- C. Infectious mononucleosis
- D. Non-Hodgkin's lymphoma
- E. HIV infection

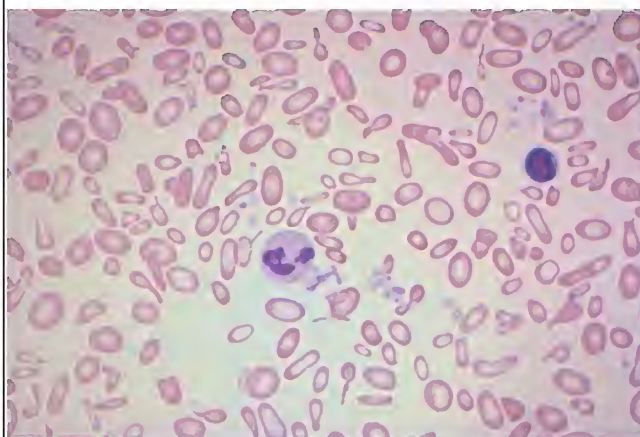
No.: 32

C

These are reactive lymphocytes as seen in infectious mononucleosis or glandular fever. Note the scalloping effect as they wrap around adjacent red cells. The cause is EBV infection and can be confirmed with a Paul Bunnell test.



No.: 33



This 75-year-old West Indian man presented to his GP with progressive tiredness. The FBC showed Hb 6 g/dl; MCV 70 fl; WCC  $11 \times 10^9/l$  and Plts  $643 \times 10^9/l$ . What is the likely diagnosis?

Options

- A. Iron deficiency
- B. Thalassemia trait
- C. Essential thrombocythemia
- D. Sickle cell disease
- E. Hereditary elliptocytosis

No.: 33

A

The film shows the characteristic features of iron deficiency: hypochromia, microcytosis, pencil cells. Iron deficiency due to blood loss is often associated with a mild thrombocytosis. Essential thrombocytosis is not associated with anaemia unless the disease transforms into a leukaemic form, which is very rare.

No.: 34

In the ante-natal clinic a woman is found to have a normal haemoglobin and MCV, but the screening test for sickle haemoglobin is positive and haemoglobin electrophoresis shows HbA 55% and HbS 45%. Her partner has a microcytic anaemia and haemoglobin electrophoresis shows a HbA band only with HbA2 quantitation of 4.8%. What is the least likely haematological diagnosis in the fetus:

Options

- A. Sickle cell trait
- B. Haematologically normal
- C. Beta-thalassemia trait
- D. Sickle-B thalassemia
- E. Sickle cell anaemia

No.: 34

E

The mother has sickle cell trait (HbAS) and the father has B- thalassemia trait (because of the raised HbA2). The fetus has a 1 in 4 chance of being haematologically normal (HbAA), having sickle cell trait (HbAS), having B-thalassemia trait and having sickle-B thalassemia .

The latter is a sickling syndrome which can be as severe as homozygous sickle cell disease. If the partner is the father of the child, the child cannot have sickle cell anaemia (HbSS) as the father does not have the sickle gene.



No.: 35

A 2-year-old child is brought to A+E by her mother. The mother says she is off her food and is very lethargic. She had a febrile illness a few days previously. She is known to have sickle cell disease, picked up on post natal screening, but has never been to hospital before. She has had episodes of dactylitis in the past which have been treated at home with pain relief. She is on no regular pain relief. FBC: Hb 3.6g/dl, wbc  $15.2 \times 10^9/l$ , plts  $613 \times 10^9/l$ . Blood film shows numerous sickle cells. There is no polychromasia. She is admitted to hospital. Two days later she develops pain in her arms, chest and legs. On examination she is febrile with widespread crackles in both lung fields. Arterial blood gases show a  $pO_2$  of 7.2kPa.

What would be the most useful diagnostic investigation at presentation?

Options

- A. Sickle solubility test
- B. Haemoglobin electrophoresis
- C. Abdominal ultrasound
- D. Liver function tests
- E. Parvovirus serology

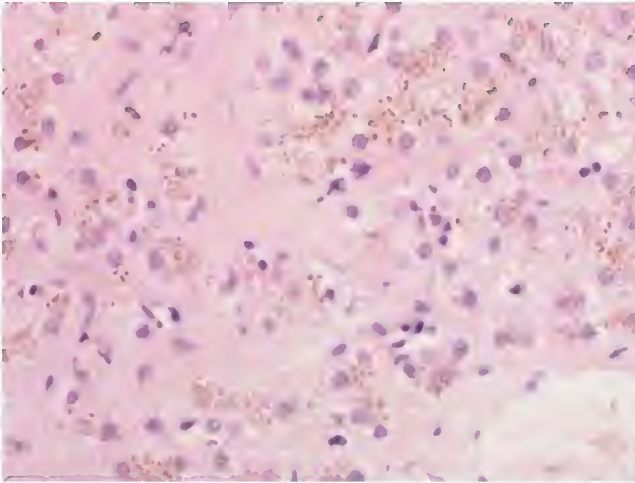
No.: 35

E

Sickle cell disease can cause anaemia because of acute haemolysis (usually associated with a painful crisis), splenic or hepatic sequestration, folate deficiency or aplastic crisis due to parvovirus infection. Only the latter is characterized by a lack of polychromasia, implying there is a reticulocytopenia (decreased production of new red cells). The best diagnostic investigation for this would be raised IgM antibodies to parvovirus. Pulmonary consolidation in sickle cell disease may be due to chest infection or sickle chest syndrome. The latter is more common with bilateral consolidation and marked hypoxia. Treatment is supportive with CPAP and exchange transfusion. As the two conditions often co-exist the patient should also be treated with antibiotics.



No.: 36



This previously well 30-year-old man is being investigated for deranged LFT's. This is his liver biopsy. What is the treatment of choice :

Options

- A. Regular venesection
- B. Regular transfusion
- C. Parenteral iron chelation
- D. Liver transplantation
- E. ?Watch and wait?

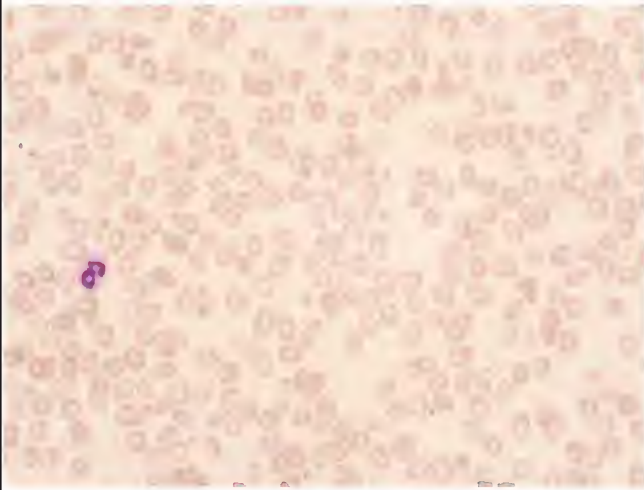
No.: 36

A

Regular venesection is the treatment of choice for haemochromatosis. Excessive iron absorption leads to iron overload and tissue damage in this inherited condition. Men present earlier. Women present after the menopause. Heterozygotes for the mutation may also be clinically compromised.



No.: 37



This patient's brother is transfusion dependent. What does the blood film shown :

Options

- A. Iron deficiency anaemia
- B. G6PD deficiency
- C. Thalassaemia trait
- D. Megaloblastic anaemia
- E. Liver failure

No.: 37

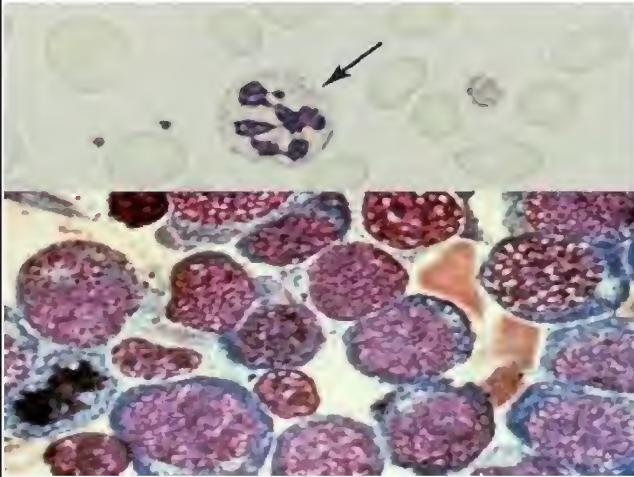
C

Thalassaemia trait is characterised by hypochromic, microcytic red cells, marked poikilocytosis and anisocytosis and a raised red cell count. It is generally of little clinical significance but important for genetic counselling.





No.: 38



What is the investigation of choice in this 65-year-old woman with a haemoglobin of 3 g/dL :

Options

- A. Iron studies
- B. Upper and lower GI endoscopy
- C. Haemoglobin electrophoresis
- D. Osmotic fragility
- E. Vitamin B12 and red cell folate levels

No.: 38

E

Vitamin B12 and/or folate deficiency are the commonest causes of megaloblastic anaemia. It may also be caused by drugs that interfere with DNA metabolism, such as methotrexate and trimethoprim .

Causes of folate deficiency include :

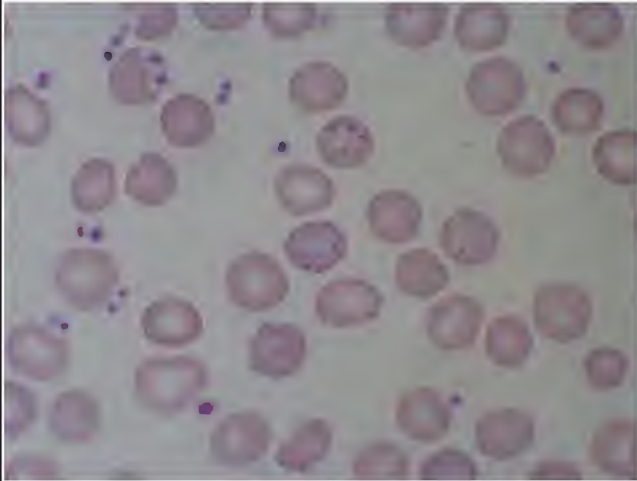
- Poor diet
- Malabsorption
- Pregnancy

Causes of B12 deficiency :

- Dietary (vegans)
- Pernicious anaemia
- Malabsorption
- Finnish fish tapeworm



No.: 39



This 20-year-old Indian woman presented with anaemia.  
What is the likely diagnosis :

Options

- A. Lead poisoning .
- B. Thalassaemia major .
- C. Iron deficiency
- D. Malaria .
- E. Megaloblastic anaemia

No.: 39

A

Lead poisoning is a known cause of basophilic stippling.  
This is caused by RNA remnants in the red cells .

Other causes are :

- Thalassaemia
- Sideroblastic anaemia
- Unstable haemoglobins
- Pyrimidine 5, nucleotidase deficiency
- Liver disease





No.: 1

A 33-year-old woman is admitted at 28 weeks gestation in her first pregnancy to the gynaecology ward. She had seen her midwife and complained of feeling generally not well. Her husband reported that she has become very vague and disorientated. The midwife found her blood pressure to be 145/88 (her booking blood pressure having been 120/80) .

On admission her blood are as follows :

Haemoglobin 7.5 g/dL  
 White cell count (WCC)  $10 \times 10^9/L$  normal differential  
 Platelets  $38 \times 10^9/L$   
 Mean corpuscular volume (MCV) 103 fL  
 Reticulocyte count 13%

Film: Red cell fragmentation with thrombocytopenia and platelet anisocytosis. There is polychromasia .

Serum lactate dehydrogenase 1056 U/L  
 Serum sodium 138 mmol/L  
 Serum potassium 3.9 mmol/L  
 Serum urea 14.3 mmol/L  
 Serum creatinine 192 mmol/L  
 Serum total bilirubin 80  $\mu\text{mol/L}$   
 Serum alanine aminotransferase 44 U/L  
 Serum alkaline phosphatase 158 U/L  
 Coagulation screen Normal  
 Fibrinogen 5.3 g/L

What treatment would you advise the Obstetric team to give to this lady?

Options

- A. Fresh frozen plasma transfusion
- B. Haemodialysis
- C. None
- D. Plasma exchange
- E. Platelet transfusion

No.: 1

A He has all three of the main manifestations of acute graft-versus-host disease (GVHD)  $\blacklozenge$  dermatitis (macular rash affecting palms and soles), hepatitis (tender right upper quadrant (RUQ) and raised alanine transaminase (ALT) and bilirubin) and gastro-enteritis (diarrhoea  $\blacklozenge$  usually described as green and watery).





No.: 2

A 33-year-old woman is admitted at 28 weeks gestation in her first pregnancy to the gynaecology ward. She had seen her midwife and complained of feeling generally not well. Her husband reported that she has become very vague and disorientated. The midwife found her blood pressure to be 145/88 (her booking blood pressure having been 120/80) .

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Film: Red cell fragmentation with thrombocytopenia and platelet anisocytosis. There is polychromasia .

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 Serum sodium 138 mmol/L  
 Serum potassium 3.9 mmol/L  
 Serum urea 14.3 mmol/L  
 Serum creatinine 192 mmol/L  
 Serum total bilirubin 80  $\mu\text{mol/L}$   
 Serum alanine aminotransferase 44 U/L  
 Serum alkaline phosphatase 158 U/L  
 Coagulation screen Normal  
 Fibrinogen 5.3 g/L

What treatment would you advise the Obstetric team to give to this lady?

Options

- A. Fresh frozen plasma transfusion
- B. Haemodialysis
- C. None
- D. Plasma exchange
- E. Platelet transfusion

No.: 2

A

This lady likely has haemolysis, elevated liver enzymes, low platelets (HELLP) syndrome which is sometimes seen in severe pre-eclampsia and eclampsia. It is related to disseminated intravascular coagulation (DIC) and there is an overlap between HELLP and DIC in the obstetric setting, hence the somewhat confusing results above (normal coag screen and alanine aminotransferase) .

As she will rapidly progress to frank coagulopathy and liver dysfunction fresh frozen plasma is indicated (and consideration of urgent evacuation of the foetus).







No.: 3

A 17-year-old man presented to hospital after suddenly developing pain in his left calf. The pain started spontaneously while he was rollerblading in a local park. There was no past history of note and he was not taking any regular medication. He was a non-smoker. He reports a family history of a cousin who developed a deep venous thrombosis (DVT) after breaking a leg .

On examination he complained of deep pain in the left calf, although there was no pain on passive movement of the leg or ankle. The D-dimer was elevated at 35 mg/l (NR < 0.5). A subsequent Doppler ultrasound scan of his leg veins did not demonstrate any evidence of venous thrombosis .

What should be the next step in his management?

Options

- A. Arrange a lower limb venogram
- B. Discharge with analgesia
- C. Repeat Doppler ultrasound scan
- D. Send blood for thrombophilia screen
- E. Start low molecular weight heparin

No.: 3

B

The question emphasises the role of D-dimer measurement as a screening and not diagnostic test. Having had a negative Doppler scan the chances of this patient having a significant above-knee DVT is extremely low, particularly since the history is entirely in keeping with trauma. Presumably the patient developed an intra-muscular haematoma secondary to straining the gastrocnemius and this has led to the elevated D-dimer.





No.: 4

A 32-year-old man is admitted to hospital with a fever for five days after receiving a cycle of chemotherapy for lymphoma. On examination, he appears unwell. He is febrile 39.5 °C. His pulse rate is 130 beats per minute and regular with a blood pressure 85/40 mmHg. Heart sounds are normal with no added sounds or murmurs. His chest is clear on auscultation and his abdomen is soft and non-tender .

Investigation results :

Haemoglobin 11.2 g/dL

White cell count  $2.0 \times 10^9/L$

Neutrophils  $0.2 \times 10^9/L$

Lymphocytes  $1.6 \times 10^9/L$

Monocytes  $0.15 \times 10^9/L$

Eosinophils  $0.04 \times 10^9/L$

Basophils  $0.01 \times 10^9/L$

Platelets  $144 \times 10^9/L$

What treatment should be started?

Options

- A. Ceftazidime + ticarcillin/clavulanic acid
- B. Co-trimoxazole
- C. Flucloxacillin + benzylpenicillin
- D. Gentamicin + metronidazole
- E. Piperacillin/tazobactam + gentamicin

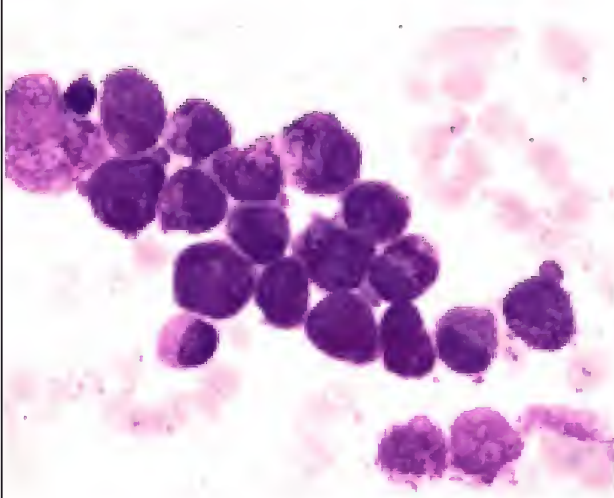
No.: 4

E

This combination is currently recommended for first-line therapy of neutropenic sepsis.



No.: 5



A 25-year-old man presented to hospital with a two-week history of increasing fatigue and exertional dyspnoea. He also complained of spontaneous bruising. On the day of admission he suddenly developed a high fever and became drowsy. On examination he was pale and looked unwell. He was drowsy but rousable with a glasgow comma scale (GCS) of 14/15. Temperature 39.0°C, pulse 140 per minute regular, blood pressure 80/40 mm Hg. There was no palpable lymphadenopathy. Heart sounds were normal and his chest was clear to auscultation. Several large bruises were noted on his arms, legs and abdomen. Abdominal examination was unremarkable.

Investigations revealed :

Haemoglobin 7.0 g/dl

White cell count  $42.1 \times 10^9/l$

Neutrophils  $0.2 \times 10^9/l$

Lymphocytes  $0.7 \times 10^9/l$

Monocytes  $0.1 \times 10^9/l$

Eosinophils  $0.088 \times 10^9/l$

Basophils  $0.012 \times 10^9/l$

Promyelocytes  $41 \times 10^9/l$

Platelets  $18 \times 10^9/l$

Prothrombin time 25 s (Control 11.5–15.5)

Activated partial thromboplastin time 48 s (Control 30–40)

Fibrinogen 0.06 g/l (1.8–5.4)

D-Dimer screen 110 mg/l (NR <0.5)

A high-power picture of his blood film is shown.

Which of the following chromosomal abnormalities is most likely to be seen on karyotype analysis?

Options

A. T(8;14)

B. T(8;21)

C. T(9; 22)

D. T(15;17)

E. T(16;16)

No.: 5

D

The patient has the most common form of acute myeloid leukaemia – acute promyelocytic leukaemia. The multiple, abnormal granulated cells seen on the blood film are the promyelocytes.



No.: 6

a 27-year-old woman was admitted to hospital after having a witnessed generalized seizure. she had been unwell for 2 days, with diarrhoea followed by fever and malaise. over the preceding 24 h, her flatmate reported that she had become confused and drowsy. her temperature was 37.8°C. her gcs was 13/15 but no focal neurological signs were elicited. apart from a petechial rash on her lower limbs examination was otherwise unremarkable. there was no neck stiffness .

investigations showed :

haemoglobin 8.9 g/dl

white cell count  $9.0 \times 10^9/l$

platelets  $29 \times 10^9/l$

serum sodium 136 mmol/l

serum potassium 5.4 mmol/l

serum urea 36 mmol/l

serum creatinine 390  $\mu\text{mol/l}$

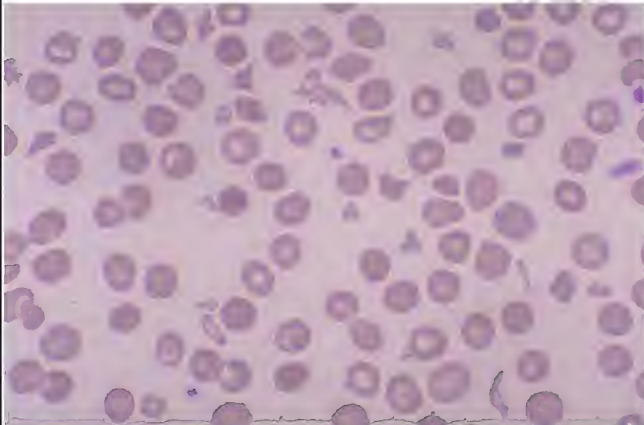
prothrombin time 13 s (control 11.5–15.0 s)

activated partial thromboplastin time 36 s (control 30–40 s)

fibrinogen 2.2 g/l (nr 1.8–5.4 g/l)

fibrin degradation products 80 mg/l (nr < 100 mg/l)

her blood film shows :



urine microscopy :

blood +++

protein +++

infection with which of the following organisms is most likely to be the cause of her illness?

Options Choose 1

A. *Escherichia coli*

B. *Herpes simplex virus-1*

C. *Neisseria meningitidis*

D. *Salmonella typhi*

E. *Streptococcus pneumoniae*

No.: 6

A

The diagnosis is thrombotic thrombocytopenic purpura (TTP). The exact cause is unclear but it usually follows GI infection with *E. Coli* (often the dreaded serotype O 157) or *Shigella* spp. which secrete shiga toxin. Note that the patient does not have disseminated intravascular coagulation (DIC), as her coagulation screen, fibrinogen and FDPs are all normal. This is a useful way of discriminating between TTP and DIC. The condition is closely related to haemolytic uraemic syndrome although this is more common in children.







No.: 7

A 32-year-old Nigerian lady with sickle cell anaemia (Hb SS) has a history of recurrent back pain. She presents to casualty with fever and a worsening of the back pain. There is no history of weight loss or night sweats.

Investigations show :

Haemoglobin 5.9 g/dL

White cell count  $9.8 \times 10^9/L$

Platelets  $475 \times 10^9/L$

Reticulocytes 11%

Serum total bilirubin 80  $\mu\text{mol/L}$

What is the most likely diagnosis?

Options Choose 1

- A. Aplastic crisis
- B. Haemolytic crisis
- C. Malaria
- D. Tuberculosis
- E. Vaso-occlusive event

No.: 7

The main differential here is between haemolytic and vaso-occlusive crises. One would expect much higher bilirubin and reticulocyte counts if this were an acute haemolytic crisis, which is relatively rare. Therefore, E is the best answer.

No.: 8

A 65-year-old man attends anticoagulation clinic for monitoring of his International Normalized Ratio (INR). He had presented 2 months earlier with an iliofemoral deep vein thrombosis (DVT) after a long-haul flight. He was taking 5 mg warfarin daily, with a target INR range of 2-3. In clinic, he complained of the appearance of several bruises on his legs over the past week, apparently without any precipitating trauma. His INR was found to be 8.8.

How should his anticoagulation be managed?

Options Choose 1

- A. Give 10 mg intravenous vitamin K
- B. Reduce warfarin dose to 2.5 mg and recheck INR in 24 hours
- C. Give 5 mg oral vitamin K. Check INR in 24 hours
- D. Stop warfarin. Restart when INR  $<3.0$
- E. Stop warfarin and start low molecular weight heparin when INR  $<1.5$

No.: 8

He does not appear to have life threatening haemorrhage, therefore complete reversal with vitamin K is inappropriate and would render him resistant to warfarin for some time. His INR needs to be monitored daily as it may continue to rise further before it falls. He has a proximal DVT, therefore his INR must not be allowed to fall too low.

The current British Society of Haematology and BNF recommend restarting warfarin when the INR  $<5$  but the MRCP exam (from which this question is taken) appears to suggest an INR  $<3$ .



<p>No.: 9</p> <p>An inpatient on the haematology ward develops a fever within a quarter of an hour of starting a platelet transfusion . His temperature rises to 38.2oC . Other than feeling flushed he is well with no change in vital signs . An hour later he remains febrile, but is well and all his observations have remained stable . What is the most likely cause of his fever:</p> <p>Options Choose 1</p> <p>A. ABO incompatibility B. Anaphylactoid reaction C. Bacterial contamination of transfused platelets D. Platelet destruction due to IgG E. Leucocyte cytokines present in unit transfused</p>	<p>No.: 9</p> <p>E</p> <p>The fact that the patient remains well and haemodynamically stable makes A-C unlikely (and platelets do not express ABO antigens in any case) . The time frame is too quick for an IgG mediated destruction which targets the antigen for destruction in the reticulo-endothelial system . Leucocyte cytokines are frequently present in haematological products due to activation during harvesting and cause this frequently encountered picture of fever without other adverse consequences.</p>
<p>No.: 10</p> <p>A 69-year-old man is referred to the outpatient clinic for investigation of anaemia. He has been symptomatic for 6 months with general fatigue and exertional dyspnoea. His past history includes benign prostatic hypertrophy, hypertension and ischaemic heart disease and he underwent coronary artery bypass surgery 6 years previously. His current medical therapy is aspirin 75mg od, simvastatin 40mg nocte and perindopril 4mg od. He stopped smoking at the time of his heart bypass and drinks less than 10 units of alcohol per week . On examination he appears pale . His pulse is 108 beats per minute, regular with blood pressure of 140/84. His heart sounds are normal with no murmurs and his chest is clear. His abdomen is soft. A smooth, non-tender liver edge is palpable 2cm below the right costal margin; the spleen is palpable 12cm below the left costal margin . His peripheral blood film shows frequent tear drop poikilocytes and leucoerythroblasts .</p> <p>What is the most likely diagnosis:</p> <p>Options Choose 1</p> <p>A. Chronic lymphocytic leukaemia B. Haemolytic anaemia C. Multiple myeloma D. Myelofibrosis E. Visceral leishmaniasis</p>	<p>No.: 10</p> <p>D</p> <p>Myelofibrosis is a chronic myeloproliferative disease associated with the peripheral blood findings described above. It can cause massive splenomegaly as the spleen (and liver) become sites of extra-medullary haematopoiesis.</p>



No.: 11

A 72-year-old man is reviewed in the outpatient clinic. He was diagnosed with chronic lymphocytic leukaemia six months ago. He has required 3 courses of oral antibiotics for chest infections .

Investigations show :

Haemoglobin 12.9g/dl

White cell count  $31.0 \times 10^9/l$

Lymphocytes  $28.1 \times 10^9/l$

Neutrophils  $3.7 \times 10^9/l$

Platelet count  $350 \times 10^9/l$

Serum electrophoresis :

IgG 2.4g/l (NR 6 - 13)

IgA 0.3g/l (NR 0.8 - 3.0)

IgM 0.1g/l (NR 0.4 - 2.5)

What is the most appropriate management option at this time:

Options Choose 1

A. Chlorambucil

B. Fludarabine

C. Intravenous immunoglobulin infusions

D. Observe

E. Stem cell transplant

No.: 11

C

The patient requires IVIg to reduce the risk of further recurrent infections .

Once this is commenced consideration should be given to chlorambucil or fludarabine therapy but these will both increase the patient's tendency to immunocompromise so should be started after IVIg.

No.: 12

A 23-year-old man attends the dental hospital for a tooth extraction. He reports prolonged bleeding after a tooth extraction 4 years previously. He has no other past medical history of note and does not report any other bleeding episodes. However, he does say that his mother had recently been referred for recurrent nose bleeds and heavy periods. The patient has an underlying abscess and the dentist feels that the extraction should not be delayed .

What should the dentist be advised to give the patient to reduce the risk of significant bleeding:

Options Choose 1

A. Cryoprecipitate

B. Factor VIII replacement

C. Fresh frozen plasma

D. Tranexamic acid

E. Von Willebrand factor concentrate

No.: 12

D

The history is strongly suggestive of von Willebrand's disease, the commonest inherited bleeding disorder .

It results from Von Willebrand factor deficiency which mediates platelet adhesion to sites of vascular injury and also stabilises factor VIII .

Tranexamic acid works as an anti-fibrinolytic and is helpful in mucocutaneous bleeding which is all that is required for a simple tooth extraction.

No.: 13

A 54-year-old man presented with lethargy and weight loss .

Investigations showed :

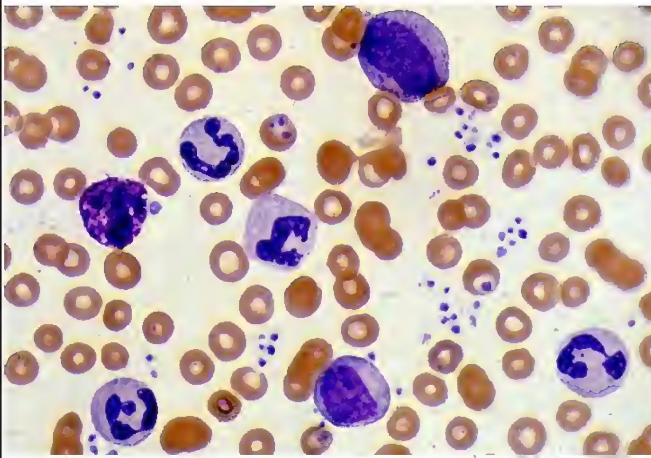
Hb 9.6g/dl

WBC 38.9 x 10<sup>9</sup>/l

Platelets 96 x 10<sup>9</sup>/l

His blood film is shown below :

What would be your initial management plan for this patient:



Options Choose 1

- A. Observation
- B. Imatinib (Gleevec)
- C. Alpha interferon
- D. AML type chemotherapy approach
- E. Allogeneic bone marrow transplant

No.: 13

B

The diagnosis is chronic myeloid leukemia. He has a leucoerythroblastic blood film with immature white and red blood cell lineages seen .

The treatment of choice is now the tyrosine kinase inhibitor gleevec which produces total remission in 70% of patients and 3 year survival of 94%.





No.: 14

A 16-year-old girl is referred urgently to clinic because of a two-day history of spontaneous bruising. She has no past history of note and is not taking any regular prescribed medication. She has noticed spontaneous appearance of atraumatic bruises on her thighs, legs and arms over the past three days. Otherwise she feels well, although she reports having had a mild upper respiratory tract infection about two weeks previously .

Investigations show :

Haemoglobin 14.2g/dl

White blood cells  $8.6 \times 10^9/l$

Platelets  $15 \times 10^9/l$

What is the next most important next step:

Options Choose 1

- A. Blood film examination
- B. Bone marrow biopsy
- C. Check coagulation screen
- D. Reassure that this is likely to resolve and see again in 5 days
- E. Start prednisolone treatment

No.: 14

A

The likely diagnosis is immune thrombocytopenic purpura following her recent URTI. However, it is important to establish from her blood film that she is: - Truly thrombocytopenic (not platelet clumping)  
- Has no other features of a more sinister cause such as AML.





No.: 15

A 55-year-old man attended the outpatient clinic for a follow-up appointment. He had a history of two venous thromboembolic events and wanted advice regarding his treatment warfarin .

He was initially diagnosed with a left ilio-femoral deep vein thrombosis two years previously after returning from a holiday in New Zealand and was treated with warfarin for six months. A thrombophilia screen, performed two months after stopping warfarin, was negative .

Six months after stopping warfarin he presented to hospital with left-sided pleuritic chest pain. Computed tomography (CT)-pulmonary angiogram showed a left sub-segmental pulmonary embolus. On this occasion there were no obvious risk factors, other than his previous event. He was recommenced on warfarin .

At time of his follow-up outpatient appointment, he was approaching completion of six months of treatment. During his hospital admission, he had been advised that he should receive lifelong warfarin therapy. However, he expressed concern about the risk of bleeding while on warfarin .

On further questioning, he reveals he had two further admissions to hospital with episodes of bleeding in the past three months. On the first occasion he had a spontaneous epistaxis. The second admission was bleeding from a scalp wound after he hit his head accidentally on a kitchen cupboard. On both occasions his international normalized ratio (INR) was over 8 .

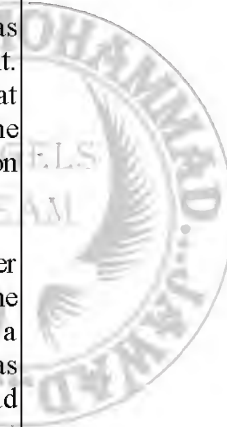
What is the best course of action?

Options Choose 1

- A. Continue warfarin
- B. Stop warfarin
- C. Stop warfarin and give long-term low molecular weight heparin
- D. Stop warfarin and implant an inferior vena caval filter
- E. Repeat thrombophilia screen

No.: 15

This man has had two episodes of venous thromboembolism (VTE). The only proven therapy is indefinite anti-coagulation with warfarin. Inferior vena cava (IVC) filters are likely to thrombose without anti-coagulation and may only serve as an alternative source for pulmonary emboli. Indefinite Low molecular weight heparin (LMWH) injections are unproven and unlikely to be feasible. A further thrombophilia screen whatever the result is irrelevant to his further management.





No.: 16

A 58-year-old gentleman was admitted to hospital after presenting with general malaise and lethargy. Despite eating normally, he had lost two and a half stones in weight in 1 to 2 months. His wife said she was having to change the bed sheets because they were drenched on a nightly basis. He also complained of upper abdominal discomfort and bloating .

On examination he looked thin and unwell. His pulse was 80 beats per minute in sinus rhythm pressure 136/74 mmHg. A short systolic murmur was audible at lower left sternal edge. His chest was clear. His abdomen was soft, with slight tenderness in the epigastrium. The spleen was palpable 5cm below left costal margin .

Investigations revealed :

Haemoglobin 9.4 g/dL

MCV 90

White cell count  $21.2 \times 10^9/L$

Neutrophils  $17.4 \times 10^9/L$

Lymphocytes  $1.8 \times 10^9/L$

Monocytes  $0.9 \times 10^9/L$

Basophils  $0.8 \times 10^9/L$

Eosinohils  $0.3 \times 10^9/L$

Platelet  $510 \times 10^9/L$

The film showed left-shifted neutrophils with numerous myelocytes present. Occasional promyelocytes were seen, but no blasts. There were are also a number of nucleated red cells .

What investigation should be performed next ?

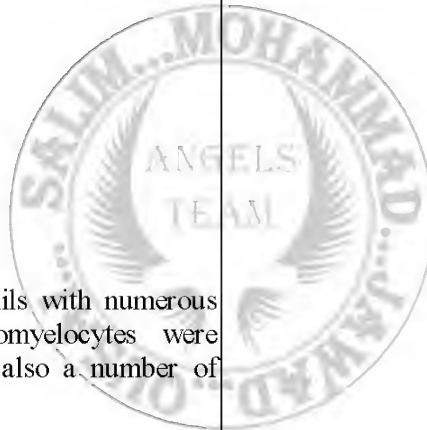
Options Choose 1

- A. Cytogenetic analysis of patient's bone marrow
- B. Immunophenotyping of peripheral blood
- C. Immunophenotyping of peripheral blood
- D. Neutrophil Alkaline Phosphatase score
- E. Ultra sound scan of abdomen

No.: 16

A

This man is very likely to have chronic myeloid leukaemia for which the diagnostic test of choice is cytogenetic analysis of bone marrow looking for the Philadelphia Chromosome. This is now particularly important given the successful use of Ph Chr targeted therapy with Imatinib, a monoclonal antibody which targets the abnormal bcr-abl tyrosine kinase formed by the chromosomal translocation.





No.: 17

A 62-year-old Egyptian presents with recurrent dark spots on his legs .

Investigations reveal the following :

Urea 14

Creat 162

Bili 12

ALP 175

AST 56

C3 1.2 (0.7-1.3)

C4 0.05 (0.12-0.27)

Which of the following is likely to be true?

Options

- A. Cold agglutinins will be positive
- B. C3 nephritic factor will be positive
- C. The IgE will be raised
- D. The cryoglobulins will be positive
- E. The ANCA will be positive

No.: 17

D

Defined as the presence of circulating immunoglobulins that reversibly precipitate on cooling. The Igs can deposit around the circulation causing a typical peripheral cutaneous purpuric rash, mononeuritis multiplex, mild hepatitis, mesangiocapillary GN and occasionally alveolar capillaritis. Diagnosis by demonstrating precipitating cryoglobulins in the serum - keep warm in transit .

\*Type 1 Cryoglobulinaemia

Monoclonal paraprotein

\*Type 2 Cryoglobulinaemia (mixed essential)

Monoclonal Ig, which acts as a rheumatoid factor. Associated with hepatitis C .

\*Type 3 Cryoglobulinaemia

Polyclonal mix of Ig

Cold agglutinins :

Cold agglutinins are antibodies, which are usually of the IgM type. At low temperatures they stick to RBCs and cause them to agglutinate in the cold peripheries of the body .

Causes include :

\*Monoclonal IgM cold agglutinins - chronic cold haemagglutinin disease, a disease usually of the elderly with monoclonal production of IgM . After cold exposure develop acrocyanosis similar to Raynaud's as a result of red cell autoagglutination .

\*Polyclonal cold agglutinins - occur after infections e.g. CMV, EBV, and Mycoplasma .

C3 Nephritic factor :

Associated with membranoproliferative.





No.: 18

A 28-year-old man who is receiving chemotherapy at another center for a germ cell tumor presents at 11 p.m. with a sore throat, as he was told to contact his doctor if he felt unwell. His last chemotherapy was 10 days ago. He tolerated his other cycles without any problems; he is due to go back to his oncologist in 3 weeks .

He is not on any medication now; he has just finished his post-chemotherapy steroids .

On examination he looks well. He has a mildly inflamed pharynx. He has no lymph nodes palpable. His inguinal scar from his orchidectomy is clean and uninflamed. He has no urinary symptoms. His pulse is 110 regular, BP 120/70, temperature 38.2 .

Hb 13 g/dl  
WCC  $1.3 \times 10^9/l$   
Lymphocytes  $2.2 \times 10^9/l$   
Monocytes  $0.2 \times 10^9/l$   
Neutrophils  $0.3 \times 10^9/l$   
Plt  $107 \times 10^9/l$   
Na 137 mmol/l  
K 3.1 mmol/l  
Urea 2.8 mmol/l  
Creatinine 67 mmol/l  
Magnesium 0.68 mmol/l  
Urate 500 micromol/l  
Alpha fetoprotein 7  
Beta HCG 2  
LDH 360 iu/l

What is your management plan?

Options

- A. Admit, oral antibiotics, transfer to center the next morning
- B. Admit, iv antibiotics, iv fluids, 4-hourly observations
- C. Send home with oral antibiotics to see own team the next day
- D. Send home to monitor temperature, if stays up call oncology team
- E. Admit, iv antibiotics and encourage oral fluids

No.: 18

B

Classic cytotoxic-induced neutropenic sepsis. Most commonly occurs 7-10 days post-chemotherapy in most regimes. Important to realize how quickly these patients can decompensate. This young man maintains his blood pressure but is tachycardic and should be admitted immediately with iv fluids and antibiotics started before he leaves the assessment unit. They often become hypotensive rapidly and require rigorous hydration.





No.: 19

A 53-year-old lady under the care of the medical oncologists for metastatic colonic carcinoma presents to the admissions unit with constipation and vomiting. This comes in waves and just before the vomiting she gets terrible pain, which wears off after she vomits. She does not feel nauseated in between these bouts .

She originally had a right hemicolectomy 3 years ago, had 6 months of chemotherapy following that, but at her last appointment got the results of her scan, which showed recurrence around the previous anastomosis and 7 deposits in the liver. Her oncologist has started her on chemotherapy again .

On examination, she is thin. She has a PICC line entering the right antecubital fossa connected to a continuous infusion of 5-fluorouracil chemotherapy. Her abdomen is scarred from her previous surgery and is distended. It is mildly tender generally and bowel sounds are few and high pitched .

Investigations :

Hb 12 g/dl

WCC 15 x 10<sup>9</sup>/l

Pl 256 x 10<sup>9</sup>/l

Na 139 mmol/l

K 3.8 mmol/l

Urea 10 mmol/l

Creatinine 67 mmol/l

Alkaline phosphatase 689 iu/l

ALT 217 iu/l

Bilirubin 20 micromol/l

Albumin 28 g/l

AXR distended loops of small bowel

Erect CXR basal atelectasis and PICC line lying in right atrium



What should your management be?

Options

- A. Stop the chemotherapy and send home
- B. Admit, stop chemotherapy pump and give iv fluids, NG tube and NBM
- C. Give analgesia and laxatives and send home
- D. Ask surgeons to carry out bypass procedure
- E. Give erythromycin

No.: 19

B

This case presents a typical subacute bowel obstruction best treated conservatively initially with  drip and suck  methods. The chemotherapy should be stopped whilst the patient is acutely unwell, in case surgical intervention is required. This occurs in 3% of hospice patients, 25-40% with ovarian cancer, 10-28% with GI cancer. Often oncological bowel obstruction is not so clear-cut, particularly in patients with diffuse peritoneal disease where there are multiple areas of obstruction. In these patients, medical methods are likely to be tried, using antiemetics (cyclizine, haloperidol, methotrimeprazine), antispasmodics/antisecretory (hyoscine butylbromide, octreotide). Pain is relieved in 70-90%, vomiting reduced in 75% with these measures alone.





No.: 20

A 78-year-old woman presents with a week's history of increasing confusion. She has otherwise been well. She has not had a temperature, gives no history of urinary frequency, or pain on passing urine. She has been thirsty. 11 years ago she had a lumpectomy and radiotherapy for breast cancer. The only medication she takes now is senna, and paracetamol for backache.

There is a family history of senile dementia. She lives with her husband, plays golf and is Chairman of the local bridge club.

On examination, she is not orientated in time, person or place. She appears dry with reduced skin turgor. She has no palpable breast lumps or lymphadenopathy. Her mobility is slightly reduced by discomfort in her back. Abdominal examination reveals a palpable liver edge.

Investigations :

Hb 10 g/dl

WCC  $7.3 \times 10^9/l$

Pl  $456 \times 100/l$

Na 136 mmol/l

K 3.4 mmol/l

Ca 3.56 mmol/l

Urea 14.3 mmol/l

Creatinine 247 mmol/l

Alkaline phosphatase 456 iu/l

ALT 57 iu/l

Bilirubin 13 micromol/l

Albumin 28 g/l

How should you manage this lady immediately?

Options

- A. Request bilateral mammogram
- B. Admit and hydrate with intravenous fluids
- C. Admit and give intravenous bisphosphonates
- D. Discharge on oral bisphosphonates
- E. Start tamoxifen

No.: 20

B

Malignant hypercalcemia can be associated with lung, breast, prostate cancers and myeloma; generally at the disseminated stage but not exclusively. It appears to be due to chemical agents released by the tumors (parathyroid hormone-like protein, prostaglandins, interleukins and transforming growth factors). There is a resultant mobilization of calcium from the bones. Symptoms include anorexia, nausea, constipation, confusion, polyuria, thirst and pain. Calcium measurements should be corrected for serum albumin levels.

Treatment should be with correction of dehydration and renal function initially, followed by stabilization of osteoclast activity with intravenous bisphosphonates.

The prognosis following malignant hypercalcemia is poor, a few months.



No.: 21

A 53-year-old estate agent presents with a 5-week history of rectal bleeding. He describes fresh red blood mixed in with stool. He has lost 5 kg over the last 3 months, and notices that he has lost some of his energy .

Of note his brother had a rectal tumor 2 years previously aged 52 and is currently well, his mother died of colorectal cancer aged 50 and he thinks his uncle died of liver cancer. He has 3 children aged 17, 23 and 26 who are all well .

Sigmoidoscopy reveals a lesion at 8cm from the anal verge. It is mobile and histology shows adenocarcinoma. Staging investigations do not show any distant disease. He is referred to the colorectal surgeons and oncologists for consideration of pre-operative radiation and total mesorectal excision .

He asks you whether his children should have genetic counseling .

UK recommendations state :

Options

- A. Screening only in FAP families
- B. Screening only in families with a female relative with endometrial or ovarian primary as well
- C. All families with a first-degree relative with colorectal cancer
- D. At least 3 family members, 1 member diagnosed under the age of 50, affecting at least 2 generations
- E. No one is eligible for screening on current evidence

No.: 21

Most bowel cancer is sporadic; only about 5-10% cases are due to highly penetrant AD mutations in cancer susceptibility genes. Two main entities are familial adenomatous polyposis (FAP) and hereditary nonpolyposis colorectal cancer (HNPCC or Lynch syndrome) .

FAP is a mutation of the APC gene on Chromosome 5. Predictive testing is offered from the age of 11. Annual sigmoidoscopy and prophylactic colectomy when polyps develop, followed by rectal surveillance, upper GI scopes 2 yearly .

HNPCC occurs due to mutations in the mismatch repair genes. The modified Amsterdam criteria for HNPCC are:

- \*At least 3 relatives with an HNPCC-associated cancer
- \*AND all of the following :
  - One case a first degree relative to the other two
  - At least two successive generations affected
  - At least one case diagnosed before the age of 50
  - Exclusion of FAP

Screening then comprises of annual colonoscopy from 25, or 5 years earlier than the youngest affected relative; 2nd yearly upper GI endoscopy; annual urine cytology; for women annual TVUSS, annual CA125 post menopause





No.: 22

A 62-year-old smoker is referred to your clinic with a cough and facial swelling. He complains of headaches, which on directed questioning occur mostly in the mornings and when he bends forwards. He has not been to hospital before. His GP has prescribed some diuretics for hypertension but he has no other past medical history. Recently he has noticed some weight loss, but he had been trying to lose some for his blood pressure.

On examination, he can get onto the couch and can lie flat but becomes more uncomfortable with breathlessness and facial tightness on doing so. His voice is hoarse. The neck veins are distended and veins over his anterior chest are also prominent. He has no obvious lymphadenopathy or abdominal organomegaly. His chest is clear with bilateral, equal air entry.

Sodium 126 mmol/l  
K 3.5 mmol/l  
Urea 4.5 mmol/l  
Creatinine 65 mmol/l  
ALT 40 IU/l  
Alkaline phosphatase 256 IU/l  
Bilirubin 15 micromol/l  
Albumin 34  
LDH 550 IU/l  
Beta HCG Normal  
Alpha foetoprotein Normal  
Hb 13 g/dl  
WCC 12 x 10<sup>9</sup>/l  
Plt 467 x 10<sup>9</sup>/l

CXR widened mediastinum  
What would be the next management step?

Options

- A. Urgent radiotherapy
- B. High dose steroids
- C. Testicular ultrasound
- D. Bronchoscopy and biopsy
- E. Mediastinoscopy

No.: 22

D

This patient is fit for a bronchoscopy and therefore a tissue diagnosis should be sort to optimise management .

Superior vena cava obstruction can present with dyspnoea, facial/head swelling, cough, arm swelling, chest pain, and dysphagia. Venous distension of the neck or chest wall veins leads to facial or arm oedema, cyanosis, and plethora of the face .

Causes :

\*Benign - SVCO thrombus (often secondary to central venous lines, pacing wires), mediastinal fibrosis, granulomatous conditions .

\*Malignant - 70% due to lung cancer (small cell, squamous, adenocarcinoma), others include lymphoma, thymoma, germ cell tumours, and metastatic breast .

Treatment options depend on diagnosis. In the malignant cases radiological SVC stenting should be considered. It is much more widely available now and if the patient is fit enough offers an immediate relief without compromising more definitive oncological treatments in the future. Chemotherapy will be effective in small cell lung cancer, lymphoma and germ cell tumours where cure is a possibility. Non-small cell lung cancer may do better with radiotherapy. Immediate supportive measures can be affected with oxygen, steroids, and morphine, humidified air, breathing exercises.



No.: 23

A 38-year-old woman presents with pigmented lesion on the right thigh. She has noticed it over the last 2 months since she has been wearing shorts and she has knocked it a few times, which has made it bleed. It is sometimes itchy. She is Scottish but grew up in Cyprus where her father was in the army. She was careful in the sun because her mother had had a ♦skin cancer .□

On examination the lesion is 1.5 cm in diameter, with irregular edges and pigmentation. Clinically it is suspicious for a malignant melanoma. There are no other lesions on the thigh. She does have freckles and naevi elsewhere on the body. There is no palpable lymphadenopathy in the groin, no palpable organomegaly in the abdomen .

The following are true :

Options

- A. The lesion should be biopsied and the referred to the dermatologists
- B. Staging should include CT scans of brain
- C. S100 is a useful marker in histological review
- D. Ulceration is a good prognostic factor
- E. Her children should be offered genetic counselling if positive

No.: 23

C

S100 is a stain positive on almost all melanomas but is not specific; HMB45 is more specific but less sensitive. Staging has recently (2001) been revised according to the American Joint Committee on Cancer (AJCC); it groups stages according to lesion thickness, ulceration and nodal or distant metastases. Stage I and II disease with and without ulceration is associated with 50 and 80% 10-year survival respectively. Vascular invasion and lymphocytic infiltration are also prognostic predictors. The most common site of first relapse is the first nodal drainage basin. It is generally thought best that a dermatological or plastic surgeon should carry out biopsies/excisions of suspected melanomas. Therapeutic node dissections are always indicated in clinically involved node regions. There is currently no role for elective node dissection outside trials. Sentinel node biopsy is recommended. There is not currently evidence for systemic treatment in the adjuvant setting, and only palliative benefit in the metastatic setting .

There is a strong family history in about 5% melanoma patients. Screening is recommended in patients with at least 2 affected first-degree relatives, but this varies between centres.



<p>No.: 24</p> <p>-68year-old gentleman gives a 3-month history of weight loss and dry cough. He has smoked 20-30 cigarettes per day since he was 16 years old. He has had 2 admissions to hospital in the last 2 years with chest infections. Currently he uses 2 inhalers at home. He lives at home on his own since his wife died last year. He has no children. He cooks for himself, and but can no longer manage the cleaning .</p> <p>On examination he is cachectic, nicotine stained fingers, clubbing. He has no palpable nodes, and auscultation reveals scattered coarse crackles bilaterally. Abdominal examination is unremarkable .</p> <p>CXR shows a right hilar mass. Bronchoscopy reveals moderately differentiated squamous carcinoma. CT scan further delineates the hilar mass and a mediastinal node 1 cm in diameter .</p> <p>FBC 11 g/dl WCC 10 x 10<sup>9</sup>/l Plt 267 x 10<sup>9</sup>/l Na 129 mmol/l K 3.6 mmol/l Urea 8 mmol/l Creatinine 265 mmol/l Liver function Normal Albumin 33 g/l Calcium 2.53 mmol/l</p> <p>What WHO performance status would you grade this gentleman?</p> <p>Options</p> <p>A. 4 B. 2 C. 0 D. 1 E. 3</p>	<p>No.: 24</p> <p><b>D</b></p> <p>There are two main tools for assessing performance status .</p> <p>ECOG/WHO scale :</p> <p>0Asymptomatic 1Symptomatic, fully ambulant 2Symptomatic, in bed or chair &lt;50% time 3Symptomatic, in bed or chair &gt;50% time 4Bedridden 5Dead</p> <p>Karnofsky Performance scale :</p> <p>%100Normal, no complaints, no evidence of disease %90Carry on normal activity, minor signs of disease %80Normal activity with effort some signs and symptoms of disease %70Cares for self, unable to carry on normal activity, or to do work %60Requires occasional assistance from others but able to care for most needs %50Requires considerable assistance from others, frequent medical care %40Disabled, special care required and assistance %30Severely disabled, hospitalisation indicated, death not imminent %20Very sick, hospitalisation, active supportive treatment necessary %10Moribund 0% Dead</p>
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No.: 25

A 68-year-old gentleman gives a 3-month history of weight loss and dry cough. He has smoked 20-30 cigarettes per day since he was 16 years old. He has had 2 admissions to hospital in the last 2 years with chest infections. Currently he uses 2 inhalers at home. He lives at home on his own since his wife died last year. He has no children .

On examination he is cachectic, nicotine stained fingers, clubbing. He has no palpable nodes, and auscultation reveals scattered coarse crackles bilaterally. Abdominal examination is unremarkable. CXR shows a right hilar mass. Bronchoscopy reveals moderately differentiated squamous carcinoma. CT scan further delineates the hilar mass and a mediastinal node 1 cm in diameter .

FBC 11 g/dl  
WCC  $10 \times 10^9/l$   
Plt  $267 \times 10^9/l$   
Na 129 mmol/l  
K 3.6 mmol/l  
Urea 8 mmol/l  
Creatinine 265 mmol/l  
Liver function Normal  
Albumin 33 g/l  
Calcium 2.53 mmol/l

What are the essential investigations that will guide management in this patient?

Options

- A. FVC
- B. Gas perfusion factor
- C. Mediastinoscopy
- D. CT thorax
- E. Bone scan

No.: 25

C

The key issue here is that this man is a candidate for radical treatment, either surgery or radiotherapy. Operability depends not only on the stage of the tumour, but the fitness of the patient to survive. FEV1 should be  $>1.5L$  (unless perhaps a very small peripheral tumour), the mediastinal nodes must be negative, PET scan should be carried out in all cases nowadays but in reality is limited to centres offering the service .

Radical radiotherapy also requires an FEV1  $>1.5$ , or if small volume tumour,  $>1.0L$  .

A bone scan is not required unless symptoms or alkaline phosphatase indicate so.







No.: 26

A 77-year-old gentleman referred to acute medical take off legs. History of gradually taking to his bed over the last 2 weeks, needs help to transfer, urinary incontinence and constipated. Past medical history includes hypertension, NIDDM and osteoarthritis in his left knee and right hip. He has had a TURP in the past for benign prostatic hypertrophy. Previously he managed to go to the corner shop for a paper, but his wife needed to help him with bathing and dressing.

On examination he is overweight, alert and oriented. He has 3/5 power in his left leg and 2/5 in his right. His plantars are upgoing. Rectal examination reveals an enlarged, irregular prostate and lax anal tone. Sensory deficit over both lower limbs to the suprapubic level. There is a palpable bladder.

## Investigations

Hb 10.8 g/dl  
WCC  $12 \times 10^9/l$   
Plt  $356 \times 10^9/l$   
Na 135 mmol/l  
K 5.1 mmol/l  
Urea 12.3 mmol/l  
Creatinine 180 mmol/l  
Glucose 12 mmol/l  
PSA 863

What is your immediate management?

## Options

- A. MRI spine
- B. High dose dexamethasone
- C. Urinary catheter
- D. Urgent radiotherapy
- E. Prostate biopsy

No.: 26

Spinal cord compression remains an oncological emergency if caught early when neurological damage is reversible. This case illustrates an insidious onset over several weeks and although there is a chance of halting further damage, reversal is unlikely. The urgency is slightly reduced then and therefore the most important procedure is the urinary catheter insertion to prevent and reverse renal dysfunction. High dose steroids (usually dexamethasone 16 mg orally) should then be started but beware the diabetic. These patients often require insulin sliding scales with this dose of steroids to prevent HONK. An MRI spine should be organised within 24 hours if possible to determine how many and where the levels of compression are. The case between and surgery and radiotherapy is to be discussed by the teams involved and usually depends on need for histology, single vs. multiple sites, previously irradiated areas, life expectancy. Urgent radiotherapy should be given within 24-48 hours once compression confirmed on MRI and surgery ruled out. If the diagnosis is known and an acute neurological deterioration has occurred with a clear clinical level, radiotherapy can be directed without a scan. If deterioration is very rapid the cause is most likely to be a vascular complication of the metastasis and radiotherapy, neither surgery nor steroids are likely to have any effect.



No.: 27

A 21-year-old man has a lifelong history of easy bruising and epistaxis .

APTT 36 s (28-38)

PT 14 s (13-16)

Fibrinogen 2.3g/dl (1.5-4)

FVIIIc 0.38 iu/ml (0.5-1.4)

vWF Ag 0.32 iu/ml (0.45-1.4)

vWF Ricof/Gplb binding assay 0.05 (0.45-1.35)

BT 12 mins (up to 8 mins)

PLts 230

He requires dental work. Which haemostatic therapy would you advise?

Options

A. DDAVP

B. FFP

C. FVIII concentrate

D. Platelets

E. Tranexamic acid

No.: 27

C

This is the type IIa of von Willebrand's disease which can be differentiated from type I by ristocetin cofactor activity, which is very much decreased in type IIa and is normal or slightly decreased in type I. Desmopressin acetate is useful in mild type I disease but is not effective in type IIa where no endothelial stores are available. Factor VIII concentrates are treatment of choice for type IIa and type IIb.



No.: 28



A 34-year-old man is admitted with intermittent fever, weight loss and night sweats. There is no lymphadenopathy palpable. What is the diagnosis :

Options

- A. Thymoma
- B. Retrosternal goitre
- C. Hodgkins disease
- D. Pulmonary tuberculosis
- E. Acute lymphoblastic lymphoma

No.: 28

**C**

There is an upper mediastinal mass. Hodgkins and non-hodgkins lymphoma are the most likely.



No.: 29

-44year-old lady presents with 2-month history of palpable lump on her neck. it is not painful; she has no other symptoms. otherwise she is well, with no past medical history. her aunt and grandmother have overactive thyroid glands. she has 2 children, is a non-smoker and drinks a glass of wine with meals .

on examination she has a visible fullness over the left neck anteriorly. this is discrete on palpation, approximately 2 cm in diameter, non-fluctuant. this moves on swallowing. there is nothing else to find. she is clinically euthyroid .

investigations :

hb 11.3 g/dl

wcc 7 x 10<sup>9</sup>/l

plt 130 x 10<sup>9</sup>/l

clotting normal

na 137 mmol/l

k 4.2 mmol/l

urea 5.7 mmol/l

creatinine 87 mmol/l

after us guided fine needle aspirate the lump is found to contain malignant cells .

which is least likely to be a differential diagnosis?

Options Choose 1

- A. Papillary carcinoma
- B. Medullary carcinoma
- C. Anaplastic carcinoma
- D. Acinic cell carcinoma
- E. Lymphoma

No.: 29

D

%10thyroid nodules are malignant .

Differential diagnoses of a solitary nodule in the thyroid are :

benign: cyst, adenoma, discrete nodule within multinodular goitre

malignant: carcinomas-papillary (70%), follicular (25%), medullary (5%), anaplastic (rare), lymphoma, metastases

\*Here a diagnosis is required and an USS-guided FNA will give a quick sensitive result. Core/trucut biopsy is not done in the vascular thyroid, thyroidectomy is recommended in the event of a malignancy and prior intervention will increase morbidity such as recurrent laryngeal nerve injury .

\* Acinic cell carcinomas are adenocarcinomas of the salivary glands.





<p>No.: 1</p> <p>A 62-year-old woman was referred to the endocrinology clinic by her General Practitioner with a lump in her neck. She was otherwise asymptomatic .</p> <p>On clinical examination she had a painless solitary right-sided thyroid nodule and she was clinically euthyroid. A fine needle biopsy demonstrated follicular carcinoma of the thyroid .</p> <p>Which of the following treatments should she receive first?</p> <p>Options</p> <p>A. Right thyroid lobectomy B. Doxorubicin C. External beam radiotherapy D. Radioactive iodine E. Total thyroidectomy</p>	<p>No.: 1</p> <p>E</p> <p>This man has a Duke's B rectal adenocarcinoma. In the absence of proven metastatic disease chemotherapy and immunotherapy are not indicated. In rectal carcinoma (CA) adjuvant radiotherapy has been shown to reduce rates of local recurrence in surgically resectable tumours. Radiotherapy is not recommended for surgically resectable colonic CA.</p>
<p>No.: 2</p> <p>A 60-year-old man with known adult onset polycystic kidney disease presents with shortness of breath, fatigue and nausea. An echocardiogram has been reported as showing a mass in the right atrium and a small pericardial effusion, but no other abnormalities .</p> <p>His blood results are as follows :</p> <p>Hb 11.3g/dl WCC <math>7.2 \times 10^9/l</math> Platelets <math>300 \times 10^9/l</math> Urea 40mmol/l Creatinine 390mmol/l Cor Ca 3.0mmol/l</p> <p>What reasons is most likely to explain his full blood count:</p> <p>Options</p> <p>A. GI bleed B. Pulmonary haemorrhage C. Ectopic erythropoietin production D. Haematuria E. Bone marrow infiltration</p>	<p>No.: 2</p> <p>C</p> <p>This patient is at increased risk of renal cell carcinoma due to polycystic kidney disease .</p> <p>Renal cell carcinoma can spread directly along the renal vein, up the IVC into the R atrium .</p> <p>This tumour is often associated with ectopic erythropoietin production .</p> <p>The patient does not give a history of haemoptysis or haematuria sufficient to cause anaemia .</p> <p>His other haematological indices remain within the normal range and one might expect them to be affected by bone marrow infiltration.</p>



<p>No.: 3</p> <p>After presenting with an upper gastrointestinal bleed and back pain, an 85-year-old lady was diagnosed with gastric cancer. Subsequent investigations revealed widespread spinal, hepatic and pulmonary metastases .</p> <p>She was discharged home on oramorph for pain relief, but was readmitted within 3 days later because of increased pain. One week after readmission she developed a productive cough with changes of bronchopneumonia apparent on her chest X-ray (CXR). Within a few hours her condition deteriorated rapidly, and she became drowsy. Her family were called urgently to the hospital .</p> <p>What would be the most appropriate treatment to discuss with family in this scenario?</p> <p>Options</p> <p>A. Intravenous antibiotics and fentanyl patch B. Intravenous antibiotics and intravenous fluids C. Intravenous antibiotics and oramorph D. Sub-cutaneous diamorphine as required E. Sub-cutaneous diamorphine pump</p>	<p>No.: 3</p> <p>E</p> <p>This patient has clearly entered the terminal phase of her illness. Treatment of her pneumonia is inappropriate and in the unlikely event that she recovers from it will only prolong her suffering. Diamorphine pumps should be administered continuously to allow for steady state levels and titratable symptom control. There is no role for intermittent PRN diamorphine here.</p>
<p>No.: 4</p> <p>A 60-year-old male patient is brought into A&amp;E unwell with a blood pressure of 90/50, temperature 37.8oC. He has recently been an in-patient on the oncology ward. He has petechiae over his body and ulceration in his mouth . What should you do:</p> <p>Options</p> <p>A. Start iv fluids, mouth washes and analgesia . B. Send bloods, cultures and start oral ciprofloxacin while awaiting results . C. Send bloods and cultures and start empirical iv ceftazidime, gentamycin &amp; fluids . D. Rehydrate, send bloods, urine, sputum, CXR . E. Ensure detailed history, examination &amp; investigation before initiating treatment.</p>	<p>No.: 4</p> <p>C</p> <p>There should be a low index of suspicion of neutropenic sepsis in an oncology patient who may be receiving chemotherapy . Especially in the context of petechiae which is suggestive of thrombocytopenia &amp; myelosuppression . It is better to send cultures and start empirical antibiotics because there is a high morbidity and mortality from gram negative sepsis to which these patients are at risk . This should not be delayed.</p>



No.: 5

A 32-year-old woman presented with a breast lump. A core biopsy confirmed adenocarcinoma of breast origin. She underwent Wide Local Excision and Axillary Clearance .

Which of the following is the strongest indicator of poor prognosis in breast cancer?

Options Choose 1

- A. Tumour size 3 cm
- B. Six out of 20 lymph nodes involved by tumour
- C. Premenopausal status
- D. BRCA1 positive
- E. Estrogen receptor positive

No.: 5

B

Survival after a diagnosis of breast cancer is dependent upon :

- .1Eradication of the primary tumour
- .2Loco-regional disease (e.g. axillary disease)
- .3Systemic metastases .

The likelihood of developing metastatic disease is closely correlated with a number of recognised prognostic factors. These factors are taken into account when deciding further treatment options. The most relevant are listed below :

- .1Tumour size
- .2Number of involved lymph nodes
- .3Tumour grade
- .4Receptor status (ER, PgR and Her2)
- .5Vascular invasion .

Age and menopausal status are also prognostic markers .

The number of lymph nodes is the most important prognostic factor.



No.: 6

A 25-year-old man presents with 2 months of weight loss, headaches and sweats. On examination he is noted to have a blood pressure of 175/110mmHg and 180/102mmHg on 2 separate occasions .

His blood results are :

Na 145mmol/l

K 4.1mmol/l

Urea 10.6mmol/l

Calcium 3.1mmol/l

Phosphate 0.4 mmol/l

Which two of the following investigations would be the most useful:

Options Choose 2

- A. Fasting blood glucose
- B. Full blood count
- C. Bone marrow trephine biopsy
- D. 24 hour urinary HIAA levels
- E. Endoscopy
- F. Neck and abdominal ultrasound
- G. Parathyroid hormone
- H. Chest x-ray
- I. MRI head
- J. Bone scan

No.: 6

F G

This patient is likely to have MEN II (Sipple's syndrome) .

Patients tend to develop primary hyperparathyroidism (adenoma), phaeochromocytoma, and medullary carcinoma of thyroid hence answers F and G are the most appropriate.







No.: 7

A 34-year-old premenopausal woman with right sided primary breast cancer had a right mastectomy, adjuvant chemotherapy and radiotherapy. There is no family history malignancy. The tumour is ER positive; PR positive; Her2 negative. 13/20 lymph nodes were involved and the primary was 1.5cm in size . Which of the following management options should be offered?

Options Choose 1

- A. Bilateral mastectomy
- B. Herceptin( transtuzumab)
- C. No further treatment
- D. Tamoxifen
- E. Aromotase inhibitors

No.: 7

D

The goal of adjuvant endocrine or hormonal therapy is to prevent the breast cancer cells from receiving stimulation from endogenous estrogen. Tamoxifen, a selective estrogen receptor modulator (SERM), inhibits the growth of breast cancer cells by competitive antagonism of estrogen at its receptor. The EBCTCG trials showed that women with ER-positive breast cancer who were under the age of 50 at the time of randomization and who received five years of tamoxifen compared to no tamoxifen had a 45 percent reduction in the risk of recurrence (which translated into an absolute reduction in the risk of recurrence of 14 percent, 25 versus 39 percent), and a 32 percent reduction in the risk of death (which translated into an absolute 7 percent reduction in the risk of dying of breast cancer, 17 versus 24 percent). Tamoxifen 20 mg daily is a standard adjuvant treatment option for both premenopausal and postmenopausal women with endocrine-responsive early breast cancer. The selective aromatase inhibitors, eg. Anastrozole, letrozole, markedly suppress plasma estrogen levels in postmenopausal women by inhibiting or inactivating aromatase, the enzyme responsible for synthesizing estrogens from androgenic substrates . Aromatase inhibitors are only used in postmenopausal women. In premenopausal women, the reduced feedback of estrogen to the hypothalamus and pituitary leads to an increase in gonadotropin secretion, which stimulate the ovary, leading to an increase in androgen substrate and aromatise.



No.: 8

A 54-year-old man is admitted increasingly disorientated, chesty and sleepy over the past week. He has had 2 rounds of chemotherapy for metastatic stomach cancer and has been told there are no further active cancer treatments for him. He has been deteriorating steadily over several weeks. His mother is adamant he should receive all medical intervention including resuscitation.

Which of the following statements is true concerning resuscitation:

Options

- A. Relatives have no legal right to decide on the patient's behalf.
- B. Where death is expected, the patient and relative must be asked for permission not to resuscitate.
- C. If a decision is made not to resuscitate, then anything which might prolong life must also be stopped.
- D. Decisions about resuscitation cannot change.
- E. Decisions about resuscitation must be unanimous.

No.: 8

A

Decisions about resuscitation should be discussed with the patient and relatives wherever possible and must be continually reviewed.

However, in UK law the relatives have no legal right to insist on resuscitation even when the patient is incapable of making an informed choice themselves.

Changes in a patient's condition may require reversal of a decision.

Do not resuscitate does not mean withdrawal of all active treatment.





No.: 9

The following tumours are associated with the mentioned characteristic laboratory abnormalities :

- .1Neuroblastoma and VMA (Vanillylmandelic acid) elevated in urine
- .2Thymoma and pure red cell aplasia
- .3Squamous cell cancer of the lung and hypercalcaemia
- .4Small cell lung cancer and hyponatraemia
- .5Nasopharyngeal cancer and EB (Epstein Barr virus) antigen positivity .

Options Choose 1

- A. All 5 are incorrect
- B. Only 1, 3 and 4 are correct
- C. All 5 are correct
- D. Only 3 is correct
- E. Only 2 is incorrect

No.: 9

C

Neuroblastoma tumour cells are characterized by defective catecholamine synthesis, which results in the accumulation and excretion of the intermediates homovanillic acid (HVA), VMA, and dopamine. Secretion of these catecholamines may give rise to symptoms (e.g. hypertension). In addition, HVA and VMA can be measured in the urine, and are useful for diagnosis and in monitoring disease activity .

Acquired pure red cell aplasia (PRCA) is a rare condition of profound anemia characterized by the absence of reticulocytes and the virtual absence of erythroid precursors in the bone marrow. All other cell lines are present and seem quantitatively and morphologically normal. Many cases of acquired PRCA are idiopathic. In others, underlying conditions such as thymoma, myelodysplastic syndromes, lymphoma, leukemia, systemic autoimmune disorders, viral infection (i.e. parvovirus B19), or treatment with drugs such as phenytoin or chloramphenicol are identified .

Lung tumours may be associated with non-metastatic systemic manifestations, also called paraneoplastic syndromes. Hypercalcemia, although frequently related to bony metastasis, can also be due to production of parathyroid hormone-related peptide, as seen most frequently with tumours of squamous cell histology. Digital clubbing and hypertrophic pulmonary osteoarthropathy can occur with any cell type, but are most frequently associated with adenocarcinoma, and least frequently with small cell carcinoma. A variety of syndromes related to the ectopic production of hormones are seen most frequently with small cell carcinoma. These include Syndrome of inappropriate secretion of antidiuretic hormone (SIADH).





<p>No.: 10</p> <p>An 88-year-old lady with metastatic small cell lung cancer was discharged home on regular oramorph for pain relief but was re-admitted after 36 hours because her analgesia was insufficient. During admission she develops a hospital acquired pneumonia and deteriorates despite antibiotic therapy with respiratory failure. Despite impairment of her GCS, she is still obviously in pain .</p> <p>What treatment is most appropriate for pain control in this situation:</p> <p>Options</p> <p>A. Oramorph prn B. Oxycontin prn C. Subcutaneous morphine prn D. Fentanyl patch E. Subcutaneous morphine pump</p>	<p>No.: 10</p> <p>E</p> <p>This lady has a reduced conscious level and may not be able to request sufficient analgesia so just given prn medication will not be adequate .</p> <p>She has been taking prn oramorph so a dose of continuous sc diamorphine via a pump can be calculated and titrated up as necessary .</p> <p>A fentanyl patch is not as easily titrated over a shorter time scale and it is important to get this lady comfortable as soon as possible.</p>
<p>No.: 11</p> <p>Which statements are correct about cancer pain :</p> <p>.1Headaches due to brain metastases frequently resolve with high-dose steroids .</p> <p>.2Headache is an initial symptom in 90% of more of brain metastases .</p> <p>.3Bone pain due to metastases respond to non-steroidal anti-inflammatory drugs (NSAIDs) .</p> <p>.4Neuropathic pains in cancer patients may respond to carbamazepine or gabapentin .</p> <p>.5Opioids can be administered with an antiemetic subcutaneously .</p> <p>Options Choose 1</p> <p>A. Only 2 is incorrect B. All 5 are correct C. Only 2 and 5 are correct D. Only 3 is correct E. All 5 are incorrect</p>	<p>No.: 11</p> <p>A</p> <p>Brain metastases present either with neurological dysfunction or with signs of raised intracranial pressure. Seizures, cognitive disturbance are often presenting symptoms. Headaches are a symptom of raised intracranial pressure (worse in the morning) and may be accompanied by vomiting .</p> <p>Dexamethasone is indicated in the majority of patients and frequently produces a reversal of symptoms. An initial dose of 16 mg/day (8 mg bd, do not give at night since patient stays awake) with lansoprazole cover is required. The failure to respond to steroids may be an argument against more aggressive therapy.</p>





No.: 12

An 18-year-old male attends A&E with a 10 week history of episodes of worsening dyspnoea & mild haemoptysis while working out at the gym. He has a history of appendicectomy & orchidopexy for undescended R testes. Examination is unremarkable except for a 1.5cm mass in the right testis and slight bilateral gynecomastia .

The A&E registrar performed a urinary pregnancy test which was positive .

Assuming the serum alpha-fetoprotein is raised what is the most likely diagnosis:

Options

- A. Acute lymphoblastic leukaemia
- B. Sarcoidosis
- C. Seminoma
- D. Epidermoid cyst
- E. Choriocarcinoma

No.: 12

This patient is likely to have a germ cell tumour .

They are the commonest solid organ malignancy in males aged 18-35 years. Seminoma is unlikely to be associated with a raised beta HCG so with a positive pregnancy test this man is most likely to have a choriocarcinoma .

The others are unlikely to produce this result.





No.: 13

A 59-year-old lady presented with epigastric pain eased by eating food or taking antacids .

A routine blood count showed :

White blood cell (WBC)  $10.3 \times 10^9$  !/  
 Haemoglobin 14.6 g/dl  
 Packed cell volume (PCV) 0.46  
 Red blood cell (RBC)  $7.02 \times 10^{12}$  !/  
 Mean corpuscular volume (MCV) 59 fl  
 Mean corpuscular haemoglobin (MCH) 18.9 pg  
 Mean corpuscular haemoglobin concentration (MCHC) 27 g/dl  
 Platelets  $425 \times 10^9$ /l  
 Differential neutrophils 75  
 Lymphocytes 15  
 Monocytes 2  
 Eosinophils 3  
 Basophils 5

Which of the following tests would not be useful?

Options

- A. Erythrocyte sedimentation rate
- B. Serum iron and transferrin saturation
- C. Neutrophil alkaline phosphatase (NAP)
- D. Upper GI endoscopy
- E. Bone marrow examination

No.: 13

A

She actually has polycythaemia. The clue is iron deficiency without anaemia and basophilia. Her symptoms relate to a gastrointestinal ulcer from which she is bleeding occultly such that she has become iron deficient but not anaemic due to the polycythaemia .

Apart from the ESR, the remainder are all features of myeloproliferative disorders. NAP will be raised.





<p>No.: 14</p> <p>A 60-year-old man with no past medical history or family history of colorectal cancer underwent a proctosigmoidoscopy for severe diarrhoea and abdominal pain. A single polypoid villous adenoma, 2cm in diameter was resected .</p> <p>Which of the following recommendations is most important for this patient?</p> <p>Options Choose 1</p> <p>A. CEA performed annually B. Faecal occult blood (FOB) repeated 6 monthly C. Proctoscopy every 2 years D. Full colonoscopy must be done E. Search for mutation genes associated with HNPCC must be done in all family members</p>	<p>No.: 14</p> <p><b>D</b></p> <p>Two-thirds of all colonic polyps are adenomas, which are common in the general population. They are by definition dysplastic and thus have malignant potential. Villous adenomas account for 5 to 15 percent of adenomas. Villous histology and increasing polyp size correlate with the development of colorectal cancer .</p> <p>If more than one is adenomatous or if one is an adenoma larger than 1.0 cm, the histology reveals villous architecture or high-grade dysplasia, or multiple adenomas are present, full colonoscopy is warranted to look for synchronous lesions. People with three to four small adenomas or one adenoma &gt;1 cm are considered to be at intermediate risk. Follow-up colonoscopy every three years until two consecutive negative examinations is recommended for colorectal cancer. People with a first-degree relative (parent, sibling, or child) with colon cancer or adenomatous polyp diagnosed at age &lt;60 years, or two first-degree relatives diagnosed at any age should be advised to have screening colonoscopy starting at age 40 years, or 10 years younger than the earliest diagnosis in their family, whichever comes first, and repeated every 5 years.</p>
<p>No.: 15</p> <p>A 58-year-old woman presents via her GP with a lump in her neck. She is clinically euthyroid &amp; has a painless solitary thyroid nodule. FNA of the nodule reveals follicular carcinoma .</p> <p>What should she have done next:</p> <p>Options</p> <p>A. External beam radiotherapy B. Carbimazole C. Total thyroidectomy D. Intravenous Doxorubicin E. Radioactive iodine</p>	<p>No.: 15</p> <p><b>C</b></p> <p>Treatment is surgical. 4-6 weeks after thyroidectomy patients will have a radioiodine scan to detect and destroy any residual tumour or metastases .</p> <p>This is repeated at intervals until there is no further radioiodine uptake .</p> <p>The patient will be rendered hypothyroid and will need thyroid replacement .</p> <p>Carbimazole would therefore be counterproductive .</p> <p>Chemotherapy is not indicated in a resectable tumour and nor is external beam radiotherapy.</p>

No.: 16



This 25-year-old woman presented with bleeding and bruising. What is the diagnosis :

Options

- A. Acute promyelocytic leukaemia (AML M3)
- B. Acute lymphoblastic leukaemia (ALL)
- C. Infectious mononucleosis and DIC
- D. Multiple myeloma
- E. Chronic myeloid leukaemia (CML)

No.: 16

A

Acute promyelocytic leukaemia is a medical emergency as patients often die from uncontrollable DIC. If the initial DIC is survived, it has a good prognosis. The classical molecular defect is a t(15:17) translocation . Heavily granulated promyelocytes with multiple Auer rods (faggot cells) are characteristic.

No.: 17

A 57-year-old smoker was diagnosed with a 3cm adenocarcinoma of the R upper lobe bronchus. This was identified on routine Chest Xray. He had no symptoms. He subsequently had a CT chest and bronchoscopy. These investigations have confirmed a 2cm lymph node at the right hilum . Which of the following investigations is least useful to clarify if radical surgery is indicated?

Options Choose 1

- A. US liver
- B. Lung function tests (FEV)
- C. CT brain
- D. Bone marrow biopsy
- E. Mediastinoscopy

No.: 17

Stage II disease represents local disease accompanied by ipsilateral hilar lymph node involvement but no mediastinal lymph node involvement and no distant metastasis. Lobectomy, the surgical removal of an anatomic lung segment, is generally accepted as the optimal surgical procedure for stage II NSCLC. Given the poor prognosis for patients with lung cancer that is not treated surgically, every effort should be made to identify those patients who will tolerate resection . Patients with preserved lung function should tolerate resection well in the absence of other comorbid conditions, and a preoperative value of FEV1 >2 L (or >60 percent predicted) suggests that the patient should be able to tolerate pneumonectomy. Bone scan and brain scan are only indicated if there are symptoms.



No.: 18

A 62-year-old man has metastatic gastric cancer. He lives alone and has recently been deteriorating. He can walk short distances & cares for himself but spends much of the afternoon in his arm chair. You are asked to provide a report for social services in order for him to claim allowances .

What WHO performance status would you give this gentleman:

Options

- A. 70%
- B. 1
- C. 4
- D. 30%
- E. 2

No.: 18

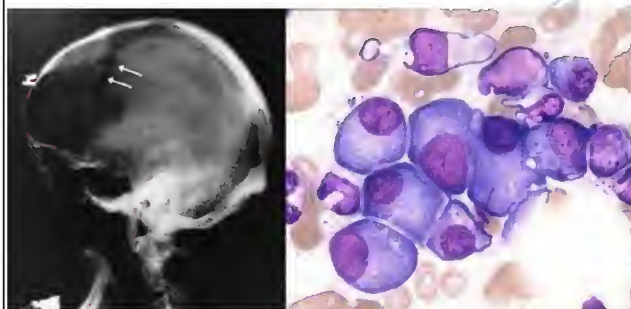
E

WHO performance status is graded 0-4 :

- 0= Fully active .
- 1= restricted in physically strenuous activity but ambulatory and able to carry out light work .
- 2= ambulatory and capable of all selfcare but unable to carry out any work activities. Up and about more than 50% of waking hours .
- 3= capable of only limited selfcare, confined to bed or chair more than 50% of waking hours .
- 4= completely disabled. Cannot carry on any selfcare. Totally confined to bed or chair .

This patient should be given a score of 2. The Karnofsky preformance score is graded in percentages.

No.: 19



This 60-year-old woman complained of back pain. Which applies best to the diagnosis :

Options

- A. Pathological fractures are not a feature .
- B. Progression to acute leukaemia is common .
- C. Hypercalcaemia confers a good prognosis .
- D. Renal failure is unusual .
- E. Monoclonal paraproteins are often found in the plasma or urine.

No.: 19

E

Multiple myeloma is a plasma cell neoplasm often complicated by bony lesions, which may result in pathological fractures, renal failure, hypercalcaemia and anaemia. The main poor prognostic indicators are :

- Anaemia (Hb < 10g.dl)
- Thrombocytopaenia (plt < 100 x 10<sup>9</sup>/L)
- Hypercalcaemia
- Renal failure
- High  $\kappa$  microglobulin

Diagnosis relies on having 2 out of 3 of :

- plasma cells > 30% in marrow
- skeletal lesions
- monoclonal paraprotein in plasma or urine



No.: 20

A 65-year-old man presents with a 6 month history of tiredness, weight loss and altered bowel habit .

His initial blood test results are as follows :

Hb 8.5g/dl

MCV 65fl

WCC  $5 \times 10^9/l$

Platelets  $450 \times 10^9/l$

Ferritin 15-16ug/l

Which of the following is the most appropriate investigation strategy:

Options

A. Bone marrow trephine biopsy

B. Upper GI endoscopy

C. Upper & lower GI endoscopy

D. Barium enema

E. Sickle cell screen

No.: 20

C

Appearances on barium studies may be suggestive of a malignant lesion but it is best to do endoscopy as there is potential for biopsy at the 1st investigative procedure.



No.: 21



A 65-year-old man has lost 8 kg in weight over the last 2 months. He has recently stopped smoking and has a dry cough. He denies haemoptysis or fever. He has suffered from increasing breathlessness on exertion & orthopnoea for 3 days alongwith difficulty in swallowing & mild headache. He is comfortable at rest with O2 sats of 95% on air. There is mild facial swelling and periorbital oedema and bronchial breathing in the RUQ. His CXR is shown .

What should be done next:

Options

- A. Start iv antibiotics
- B. Urgent bronchoscopy
- C. Urgent surgical excision
- D. Urgent radiotherapy
- E. Non-invasive ventilation

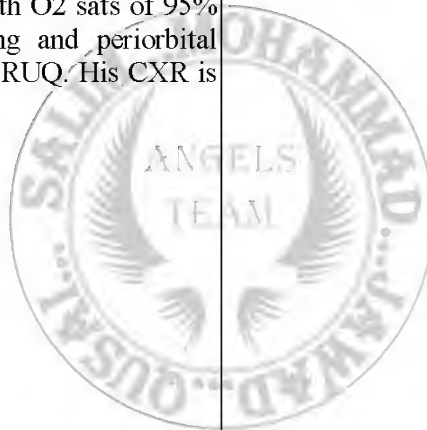
No.: 21

B

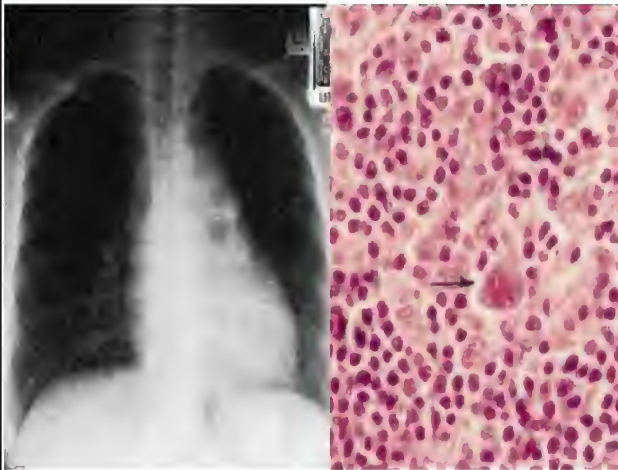
Ideally you would need a tissue diagnosis for this patient prior to comencing treatment .

He has superior vena caval obstruction which may be due to a lung cancer but may also be due to a lymphoma which may completely disappear with radiotherapy and the patient would have no diagnosis and have received inadequate therapy .

Surgical excision is unlikely to be feasible and non-invasive ventilation is not yet indicated.



No.: 22



This 27-year-old woman presented with weight loss.  
What is the diagnosis :

Options

- A. Breast cancer
- B. Tuberculosis
- C. Hodgkin's disease
- D. Sarcoidosis
- E. Aggressive B-cell lymphoma

No.: 22

C

Hodgkin's disease often presents with lymphadenopathy or B symptoms (weight loss, fevers, night sweats). It is characterised by the presence of large Reed-Sternberg cells and, if responsive to therapy, is curable.

No.: 23

A previously fit and healthy 57-year-old man is found to have a malignant polyp in the sigmoid colon after presenting with iron-deficiency anaemia. The histopathology results after operative resection of the tumour reveal an adenocarcinoma with invasion through the muscularis propria and involvement of three regional lymph nodes .

What further management, if any, is required:

Options

- A. Radiotherapy
- B. Chemotherapy
- C. Follow-up with yearly colonoscopy
- D. Chemotherapy and radiotherapy
- E. Annual CT chest, abdomen and pelvis

No.: 23

B

Adjunctive chemotherapy is now indicated for all patients with Dukes B or higher colorectal adenocarcinoma .

Trials are ongoing to establish the optimal drug combination .

Radiotherapy is also used in rectal cancer as adjunctive therapy.



No.: 24

A gentleman with known prostate cancer has blood results as follows :

Na 138 mmol/l

K 3.6 mmol/l

Urea 10.0 mmol/l

Creatinine 140 mmol/l

Calcium 3.2 mmol/l

Phosphate 1.3 mmol/l (0.75-1.5mmol/l)

Alkaline phosphatase 300 mmol/l

Albumin 30g/l

Total protein 60g/l

What is the likely diagnosis ?

Options

A. Primary hyperparathyroidism

B. Sarcoidosis

C. Ectopic PTH secretion

D. Metastatic carcinoma

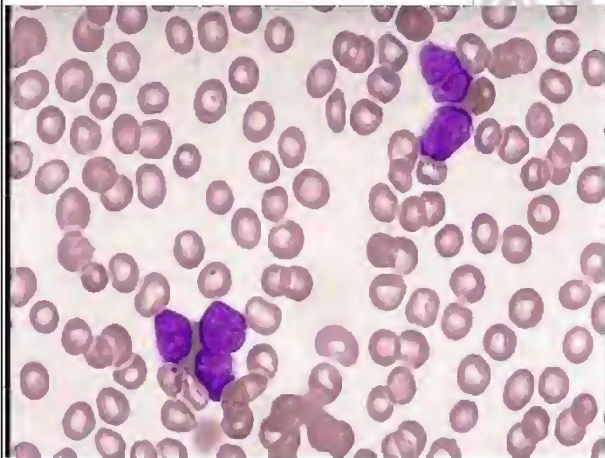
E. Myeloma

No.: 24

D

This man is most likely to have bony metastases from prostate cancer causing the hypercalcaemia.

No.: 25



This 9-year-old girl was tired, pale and had a WBC of  $47 \times 10^9/L$ . Which statement is most accurate :

Options

A. She has acute myeloid leukaemia .

B. She is in a poor prognosis group .

C. Treatment is palliative .

D. She has acute lymphoblastic leukaemia

E. She needs leukapheresis.

No.: 25

D

Acute lymphoblastic leukaemia (ALL) is the commonest leukaemia in children and is currently curable in 70-80% of cases .

Poor prognostic factors are :

-Male sex

-WBC  $> 50 \times 10^9/L$ -Age  $< 1yr$  or  $> 10yrs$ 

-Presence of Philadelphia chromosome or MLL gene rearrangements.

No.: 26



A 30-year-old woman is referred for advice by her GP as her brother has just been diagnosed with colon cancer aged 28 years. She is currently asymptomatic.

You ask her a more detailed history & you establish the following family tree. Her mother died at 45 of endometrial cancer and her uncle died of colorectal cancer at 60. Her cousin also died of colorectal cancer but at 38. She has an aunt and a cousin who are both well and cancer-free.

What would you recommend for this woman:

Options

- A. CT chest, abdomen and pelvis
- B. Colonoscopy, transvaginal USS and regular follow-up
- C. CEA measurement & GP follow-up
- D. Colectomy, bilateral mastectomies and total abdominal hysterectomy and bilateral salpingo-oophorectomy
- E. Genetic screening for mutations in the APC gene

No.: 26

B

This family is likely to have hereditary non-polyposis colorectal cancer (HNPCC) syndrome.

Autosomal dominant mutation in a DNA mismatch repair gene (3-5% of colorectal cancer (CRC)).

Diagnostic criteria:

- 3 or more family members affected by CRC
- 2 or more with CRC and 1 with endometrial ca, either :
- In 2 or more generations
- 1 under 50 years at diagnosis
- 1 must be a 1st degree relative of the other 2
- Current advice would be to have regular colonoscopies from age 25 or 5 years younger than the youngest index case
- Also significant increased risk of endometrial & ovarian ca → annual trans-vaginal USS recommended from age 25
- Consider prophylactic TAH & BSO

A & C would be insufficient.

D would be unnecessary - combines hereditary colon cancers with BRCA mutation advice.

The APC gene mutation is associated with familial adenomatous polyposis syndrome.



No.: 27

Which of the following tumours is/are associated with the mentioned laboratory abnormalities?

(1Neuroblastoma & VMA (Vanillylmandelic acid) elevated in urine  
 (2Thymoma & pure red cell aplasia  
 (3Squamous cell cancer of the lung & hypercalcaemia  
 (4Small cell lung cancer & hyponatraemia  
 (5Nasopharyngeal cancer & Epstein Barr virus antigen positivity

Options

- A. All 5 are incorrect
- B. Only 1), 3) & 4) are incorrect
- C. All 5 are correct
- D. Only 3) is correct
- E. Only 2) is correct

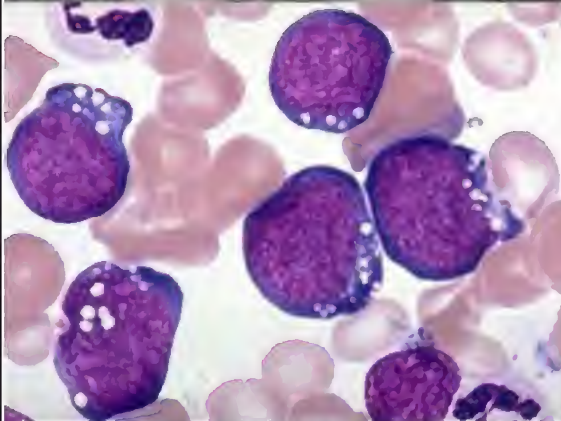
No.: 27

C

All are true.



No.: 28



This 12-year-old boy lives in East Africa. What is the diagnosis :

Options

- A. Infectious mononucleosis
- B. Salivary gland adenocarcinoma
- C. Branchial cyst
- D. Burkitt's lymphoma
- E. Dental abscess

No.: 28

D

Burkitt's lymphoma occurs in endemic and sporadic forms .

Endemic Burkitt's lymphoma is EBV driven and seen in children in Sub-Saharan Africa. It is very responsive to treatment .

Sporadic Burkitt's has a worse prognosis and is seen at all ages .

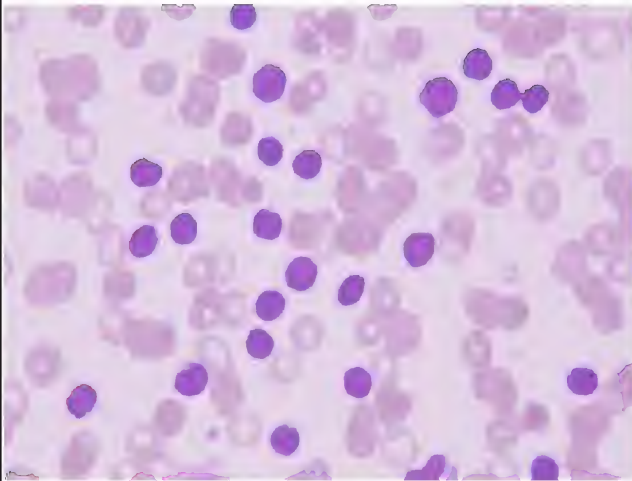
Vacuolated lymphocytes are the hallmark of this disease.





<p>No.: 29</p> <p>A 54-year-old smoker complains of a 2 week history of abdominal pain and constipation. His wife also reports intermittent confusion .</p> <p>Blood results :</p> <p>Na 130mmol/l</p> <p>K 4.5mmol/l</p> <p>Urea 8.0mmol/l</p> <p>Creat 120mmol/l</p> <p>Corr Ca 3.20mmol/l</p> <p>Alkaline phosphatase 100U/l (20-120U/l)</p> <p>PTH 5pg/ml (10-65pg/mL)</p> <p>Which of the following is the most useful investigation to do next:</p> <p>Options</p> <p>A. CT head</p> <p>B. Abdominal x-ray</p> <p>C. Chest x-ray</p> <p>D. Bone scan</p> <p>E. Vitamin D level</p>	<p>No.: 29</p> <p>C</p> <p>This patient has symptomatic hypercalcaemia and has a normal alkaline phosphatase .</p> <p>With a history of smoking, the most useful and easiest investigation to do next would be a chest x-ray as there is a strong likelihood he would have a lung cancer with associated paraneoplastic hypercalcaemia .</p> <p>It would be worth rehydrating this man and correcting his hypercalcaemia before performing a CT head as his confusion may resolve .</p> <p>There is no reason to suggest bony metastases yet so a bone scan would not be the best investigation to do first on this list.</p>
<p>No.: 30</p> <p>An 17-year-old Zimbabwean male asylum seeker presents with a two week history of neck swelling. On examination he has massive painless cervical lymphadenopathy .</p> <p>Which of the following investigations should be performed to obtain the diagnosis:</p> <p>Options Choose 1</p> <p>A. Bone marrow aspiration and trephine biopsy</p> <p>B. Chest x-ray</p> <p>C. CT scan chest</p> <p>D. HIV antibody test</p> <p>E. Lymph node biopsy</p>	<p>No.: 30</p> <p>E</p> <p>The most likely underlying diagnosis is Burkitt's lymphoma, a B-cell lymphoma which is highly prevalent in Africa .</p> <p>It is associated with a characteristic translocation of the c-myc oncogene from chr 8 to one of the antibody loci on chr 14, 2 or 22 .</p> <p>Histologically, biopsy specimens have a characteristic 'starry sky' appearance, therefore LN biopsy is the investigation of choice here although subsequent bone marrow studies and full body imaging are required for staging.</p>

No.: 31



This is the blood of an asymptomatic 70-year-old woman. What is the diagnosis :

Options

- A. Chronic lymphocytic leukaemia (CLL)
- B. Acute lymphoblastic leukaemia (ALL)
- C. Small cell lung carcinoma
- D. Plasma cell leukaemia
- E. Atypical lymphocytes

No.: 31

A

Chronic lymphocytic leukaemia (CLL) is an indolent disease most prevalent in the elderly and often detected as an incidental finding .

On progressing, it may be complicated by :

- lymphadenopathy
- immune anaemia and thrombocytopaenia
- transformation to aggressive lymphoma

Treatment ranges from watching and waiting to intensive chemotherapy for progressive disease.

No.: 32

What is the commonest genetic predisposition in a woman with a family history of breast cancer ?

Options

- A. BRCA 1 carrier
- B. BRCA 2 carrier
- C. Carrier of p53 mutation
- D. Carrier of unknown germline mutation
- E. Carrier of pTEN mutation

No.: 32

D

Most women with familial breast cancers are likely to be carriers of unknown germline mutations .

BRCA1 & 2 mutations are possible with this history but account for only a small percentage of this group and the question asks what is the most likely result.

No.: 33



What is this most likely to be due to :

Options

- A. Iron deficiency
- B. Folate deficiency
- C. Myeloma
- D. Metastatic carcinoma
- E. Autoimmune haemolysis

No.: 33

C

Myeloma. Rouleaux formation is classical of myeloma, where a paraprotein leads to red cell agglutination. Intense inflammatory responses may have the same effect. Rouleaux formation correlates with ESR.

No.: 34

A 34-year-old premenopausal woman with a 15mm right sided breast cancer had a right mastectomy, adjuvant chemotherapy and radiotherapy. 13/20 lymph nodes sampled were subsequently found to be involved. There is no family history of malignancy. The tumour is ER positive; PR positive; HER2 negative . Which of the following management options should be offered:

Options

- A. Contralateral mastectomy
- B. Herceptin (Trastuzumab)
- C. No further treatment
- D. Tamoxifen
- E. Arimidex

No.: 34

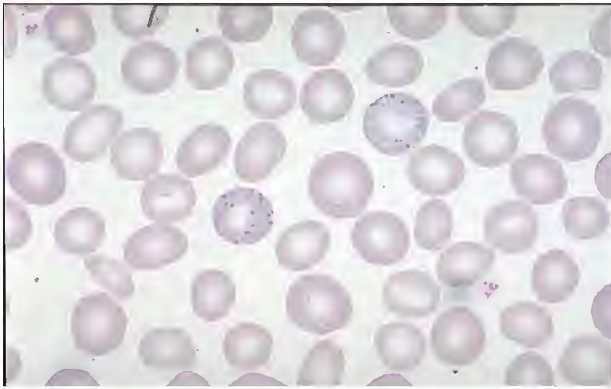
D

This lady is likely to be premenopausal and has an oestrogen receptor positive breast cancer so she should be offered adjuvant Tamoxifen (which blocks the oestrogen receptor) to reduce the risk of disease recurrence .

Arimidex is an aromatase inhibitor & blocks the conversion of androgens to oestrogen. It is used in post-menopausal women and would not be suitable in this case .

Herceptin would not be helpful for this lady as her tumour is HER 2 negative. There is no indication for a contralateral mastectomy.

No.: 35



A 55-year-old Indian man is sent to the Gastroenterology clinic with recurrent abdominal pain. His wife has noticed that he has been becoming very forgetful recently. His FBC shows Hb 9 g/dl; MCV 65 fl; WCC  $4 \times 10^9/l$ ; Plats  $185 \times 10^9/l$ . His blood film is shown. Which of the following diagnoses is likely?

Options

- A. Iron deficiency
- B. Lead poisoning
- C. Thalassaemia
- D. Carbon monoxide poisoning
- E. Hereditary elliptocytosis

No.: 35

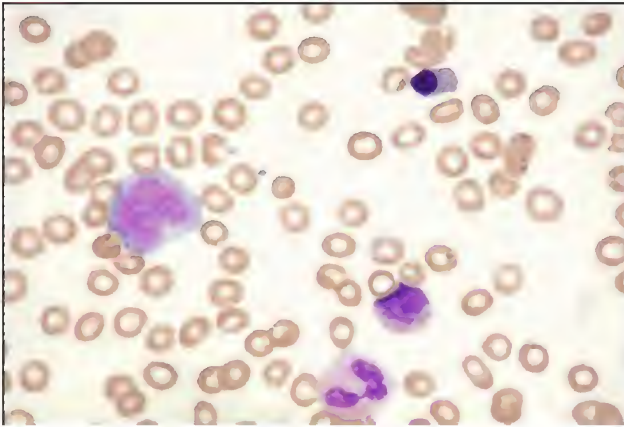
B

This film shows basophilic stippling in the red cells. This is seen in lead poisoning, thalassaemia and elliptocytosis. However, the latter conditions have other morphological abnormalities not seen on this slide and do not fit the clinical history. Iron deficiency would fit the clinical details but does not cause basophilic stippling. Lead is often found in herbal medicines in India.





No.: 36



A 75-year-old man presents with weight loss and polyuria over 2 months. He describes a vague lower abdominal pain and also pain in his upper back. He smokes 10 cigarettes a day. His only medication is Tamsulosin 0.4mg od. On examination, he is pale and thin with fine crackles at both lung bases. No hepatosplenomegaly or lymph node enlargement are detected .  
What does this blood film show:

Options

- A. Target cells
- B. Leucoerythroblastic picture
- C. Spherocytosis
- D. Macrocytosis
- E. Anisocytosis

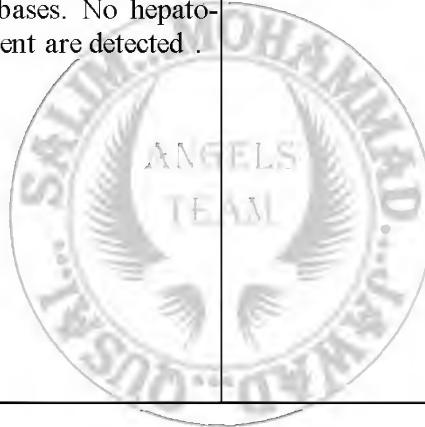
No.: 36

B

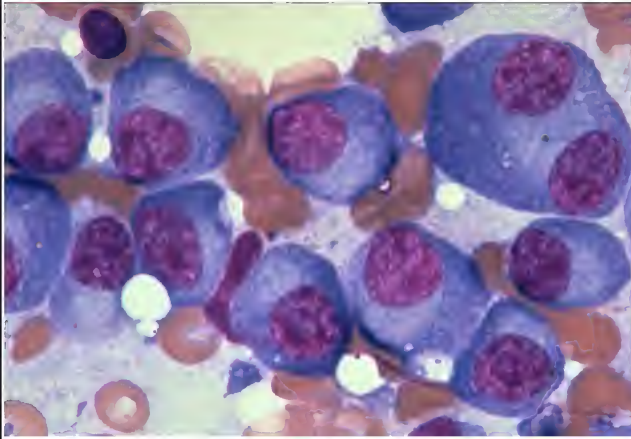
The blood film shows myelocytes & normoblasts (nucleated red cells) .

There is a normocytic, normochromic anaemia and an immature white blood cell .

This is typical of a leucoerythroblastic picture which with this history would be suggestive of malignancy.



No.: 37



This marrow came from a 70-year-old woman who complained of sudden pain and blindness in one eye. She had also experienced worsening back pain over the last month. What is the diagnosis?

Options

- A. Multiple myeloma
- B. Acute lymphoblastic leukaemia
- C. Non-Hodgkin's lymphoma
- D. Megaloblastic anaemia
- E. Acute myeloid leukaemia

No.: 37

A

The marrow shows abnormal plasma cells in high concentration, indicative of multiple myeloma. Plasma cells are large with an eccentric nucleus and abundant very blue cytoplasm. The blue colour is caused by the paraprotein and sometimes makes the slide background blue. If the paraprotein is high this can produce hyperviscosity and retinal vein thrombosis.



No.: 38

Which two investigations will be most useful in establishing the diagnosis of the patient whose chest X-ray is shown:



Options Choose 2

- A. Bronchoscopy
- B. Transthoracic lung biopsy
- C. Abdominal CT scan
- D. Sputum cytology
- E. 3 early morning urine samples
- F. Bone scan
- G. PET scan

No.: 38

A C

This patient is at risk of renal cell carcinoma and his chest x-ray is suggestive of lung metastases (cannonball mets) .

A bronchoscopy & biopsy may yield tissue to confirm the diagnosis and an abdominal CT scan would be useful to look at his kidneys .

A bone scan and PET scan would not further aid the actual diagnosis .

Sputum cytology may reveal malignant cells but is not very sensitive and a transthoracic biopsy may be necessary for tissue diagnosis but it would be worth attempting a bronchoscopy first.



<p>No.: 1</p> <p>As the medical registrar at Barnet General you are called to see a 23--year-old Greek student who has just returned from a holiday in Thailand. He is jaundiced with a fever and diarrhoea .</p> <p>Hb 97 g/l , WBC 5.6 x 109/l , Plts 87 x 109/l , CRP 130 , Cr 244 <math>\mu</math>mol/l , Fibrinogen 1.4 g/l</p> <p>Your empirical therapy consists of intravenous ciprofloxacin, erythromycin and quinine. When you review the patient he is drowsy and hypotensive with a widespread macular rash. What is the next step :</p> <p>Options</p> <p>A. Give ceftriaxone B. Give intravenous saline C. Perform a lumbar puncture D. Check the blood sugar E. Ring the Royal Free for some advice</p>	<p>No.: 1</p> <p><b>C</b></p> <p>The diagnosis is probably atypical pneumonia due to <i>L. pneumophila</i>. Although the travel history, fever and loose stools could fit with enteric fever these symptoms combined with cough, raised RR and a normal Pulse + BP do not. Legionnaires disease presents with abrupt onset of fever, rigors, malaise, myalgia and dry cough. About 50% will also have diarrhoea and abdominal pain. High dose erythromycin is the treatment of choice</p>
<p>No.: 2</p> <p>As the medical registrar at Barnet General you are called to see a 23--year-old Greek student who has just returned from a holiday in Thailand. He is jaundiced with a fever and diarrhoea .</p> <p>Hb 97 g/l , WBC 5.6 x 109/l , Plts 87 x 109/l , CRP 130 , Cr 244 <math>\mu</math>mol/l , Fibrinogen 1.4 g/l</p> <p>Your empirical therapy consists of intravenous ciprofloxacin, erythromycin and quinine. When you review the patient he is drowsy and hypotensive with a widespread macular rash. What is the next step :</p> <p>Options</p> <p>A. Give ceftriaxone B. Give intravenous saline C. Perform a lumbar puncture D. Check the blood sugar E. Ring the Royal Free for some advice</p>	<p>No.: 2</p> <p><b>D</b></p> <p>The diagnosis is almost certainly severe falciparum malaria. Hypoglycaemia is a feature of severe malaria and is exacerbated by the hyperinsulinaemic effect of quinine, BM's should be continually monitored in this patient.</p>





No.: 3

As the medical registrar at Barnet General you are called to see a 23--year-old Greek student who has just returned from a holiday in Thailand. He is jaundiced with a fever and diarrhoea .

Hb 97 g/l ,

WBC  $5.6 \times 10^9/l$  ,Plts  $87 \times 10^9/l$  ,

CRP 130 ,

Cr 244  $\mu\text{mol/l}$  ,

Fibrinogen 1.4 g/l

A blood film demonstrates 6% P falciparum parasitaemia and the patient is transferred to ITU and commenced on iv quinine. Progress is slow and on day 2 he is started on exchange transfusion after his parasite count rises to 12%. By day 3 he is oliguric and passing only 15ml of urine per hour. The parasite count is 22% and the reference lab notes co-infection with P vivax. What is the next best step :

Options

- A. Continue exchange transfusion
- B. Haemodialysis
- C. Intravenous methyl prednisolone
- D. Adding artesunate
- E. Switching quinine to mefloquine

No.: 3

D

The deterioration and rise in the parasite count despite 3 days of quinine therapy is highly suggestive of quinine resistance especially as the infection was acquired in Thailand. Artesunate is rapidly parasiticidal and effective against quinine resistant strains.





No.: 4

As the medical registrar at Barnet General you are called to see a 23--year-old Greek student who has just returned from a holiday in Thailand. He is jaundiced with a fever and diarrhoea .

Hb 97 g/l ,  
WBC 5.6 x 10<sup>9</sup>/l ,  
Plts 87 x 10<sup>9</sup>/l ,  
CRP 130 ,  
Cr 244  $\mu$ mol/l ,  
Fibrinogen 1.4 g/l .

Miraculously the patient recovers and is discharged home only to be admitted on your colleague's take the following week with jaundice and dark urine. Which investigation does she arrange :

Options

- A. Hepatitis A IgM
- B. Thick and thin blood film
- C. G6PD assay
- D. Coomb's test
- E. Liver ultrasound scan

No.: 4

B

It is essential to exclude malaria with multiple thin and thick blood films in a traveller returning from abroad with a fever. The condition is most probably malaria falciparum which is widely prevalent in Asia and Africa

No.: 5

A 39-year-old prostitute attends her local GU clinic with a fever, malaise and arthralgia. She has a widespread maculo-papular rash and the following test results :

HIV p24 antigen negative  
Cold agglutinin IgM antibody 1:32  
FT-ABS negative  
VDRL positive  
CRP 137

The patient recovers but four weeks later presents to A&E with double vision and difficulty walking. Deep tendon reflexes are absent. What is the treatment of choice :

Options

- A. Methyl prednisolone
- B. Immune globulin
- C. Procaine penicillin
- D.  $\alpha$ -interferon
- E. Plasma exchange

No.: 5

B

The most likely cause of the presenting illness is Mycoplasma pneumonia infection. This can cause fever, arthralgia, maculopapular rash and a raised CRP. It is also a cause of false positive VDRL and +ve cold agglutinins. Neurological syndromes post infection include meningoencephalitis, transverse myelitis and Guillain Barre syndrome which can be treated with normal immunoglobulin.



<p>No.: 6</p> <p>A 39-year-old prostitute attends her local GU clinic with a fever, malaise and arthralgia. She has a widespread maculo-papular rash and the following test results :  HIV p24 antigen negative  Cold agglutinin IgM antibody 1:32  FT-ABS negative  VDRL positive  CRP 137</p> <p>The patient recovers but four weeks later presents to A&amp;E with double vision and difficulty walking. Deep tendon reflexes are absent. What is the most important test to arrange :</p> <p>Options</p> <p>A. MRI head scan  B. Lumbar puncture  C. Spirometry  D. Tensilon test  E. Nerve conduction studies</p>	<p>No.: 6</p> <p><b>C</b></p> <p>The most likely cause of the presenting illness is Mycoplasma pneumonia infection. This can cause fever, arthralgia, maculopapular rash and a raised CRP. It is also a cause of false positive VDRL and +ve cold agglutinins. Neurological syndromes post infection include meningoencephalitis, transverse myelitis and Guillain Barre syndrome .</p> <p>MRI, lumbar puncture and nerve conduction studies are all indicated but the most important investigation is measurement of vital capacity to monitor any evolving respiratory paralysis.</p>
<p>No.: 7</p> <p>Nick, a 63-year-old restaurant owner from North London, presents with a six-month history of backache, fatigue and night sweats. On examination he pale, with mild splenomegaly and tenderness over L4/5. The ESR is 58. Choose one of the following investigations :</p> <p>Options</p> <p>A. Blood cultures  B. <sup>111</sup>Indium-labelled white cell scan  C. Technetium bone scan  D. Trans-oesophageal echocardiogram  E. Spinal MRI</p>	<p>No.: 7</p> <p><b>E</b></p> <p>The most likely diagnosis is vertebral osteomyelitis. This is supported by the raised ESR which although non-specific is raised in up to 80% of patients at presentation. It can also be a useful tool to monitor the effect of antimicrobial treatment. Although vertebral osteomyelitis is acquired haematogenously blood cultures are very rarely positive at presentation. In view of the fever, night sweats and location of the lesion (L4/5) TB is a likely cause. Bone scanning and white cell scans are sensitive but not specific. The best imaging technique is CT or MRI, which may show erosion of vertebral endplates and paravertebral swelling highly suggestive of osteomyelitis.</p>



<p>No.: 8</p> <p>Nick, a 63--year-old restaurant owner from North London, presents with a six month history of backache, fatigue and night sweats. On examination he pale, with mild splenomegaly and tenderness over L4/5. The ESR is 58. A CT guided biopsy of L4 reveals granulomas. No organisms are seen on either Gram or Ziehl Neelson stains. You arrange a heaf test which is read as grade 2. The ESR is now 75. What is your choice of blind antimicrobial therapy :</p> <p>Options</p> <p>A. Rifampicin, isoniazid, pyrazinamide and doxycycline          B. Rifampicin, isoniazid, pyrazinamide and ethambutol          C. Vancomycin and rifampicin          D. Ciprofloxacin and clindamycin          E. Ceftriaxone</p>	<p>No.: 8</p> <p>A</p> <p>The presentation is clearly that of vertebral osteomyelitis. A raised ESR, and granulomas on biopsy could be caused by tuberculosis or brucella. The diagnosis of brucella is supported by the absence of AFB's on ZN staining, the diagnosis of TB is supported by the +ve Heaf test. The treatment of vertebral brucella is doxycycline and rifampicin. Because TB cannot be excluded until culture results are available the best blind therapy should cover TB and brucella i.e. rifampicin, isoniazid, pyrazinamide and doxycycline'</p>
<p>No.: 9</p> <p>Nick, a 63--year-old restaurant owner from North London, presents with a six month history of backache, fatigue and night sweats. On examination he pale, with mild splenomegaly and tenderness over L4/5. The ESR is 58. Four weeks later the ESR is 86, Nick's back pain is worse and he cannot dorsiflex his right foot. What would you do next :</p> <p>Options</p> <p>A. Examine the colour of Nick's urine          B. Telephone the lab to check on long term biopsy cultures          C. Repeat the Heaf test          D. Repeat the spinal MRI          E. Start prednisolone 60mg</p>	<p>No.: 9</p> <p>E</p> <p>He has developed spinal nerve root compression, steroids should be started before re-imaging the area. This is a case of vertebral osteomyelitis and as cord compression has occurred before the imaging results, prednisolone is started to decrease inflammation.</p>





<p>No.: 10</p> <p>You are called to the orthopaedic ward to see an old woman who has recently undergone repair of a fractured NOF. She received haloperidol for post-operative confusion and has now developed dyspnoea, hypotension, fever and a petechial rash .</p> <p>Hb 96 g/l CK 944 iu/l MCV 82 fl Cortisol 355 nmol/l (random) WBC 13 x 10<sup>9</sup>/l Lactate 9 mmol/l Plts 87 x 10<sup>9</sup>/l CXR alveolar shadowing</p> <p>What is the most likely diagnosis :</p> <p>Options</p> <p>A. Neuroleptic malignant syndrome B. Waterhouse-Friedrichsen's syndrome C. Myocardial infarction D. Acute Myeloid Leukaemia E. Fat embolism</p>	<p>No.: 10</p> <p><b>E</b></p> <p>Fat embolism presents with dyspnoea and hypoxia due to ventilation-perfusion abnormalities and sometimes (20-50% of cases with reddish-brown nonpalpable petechiae over the upper body, particularly in the axillae which are virtually diagnostic. Neurological involvement leads to drowsiness and confusion. Diffuse alveolar infiltrates may be seen on CXR. Management is supportive with maintenance of adequate oxygenation and hydration.</p>
<p>No.: 11</p> <p>You are the registrar on call on a Friday night in Southampton when your house officer admits a 47--year-old farmer with a painful, swollen knee and a Bell's palsy. You discover the patient on Monday morning. He has a low-grade fever and an immobile joint. Aspiration reveals a white cell count of 19,000 / mm<sup>3</sup>, predominantly neutrophils. There are no organisms seen on Gram stain. What is your first-line treatment :</p> <p>Options</p> <p>A. Benzyl penicillin 600mg qds (iv) and flucloxacillin 500mg qds (iv) B. Arthroscopy and debridement C. Intra-articular fucidin beads D. Intra-articular hydrocortisone E. Colchicine</p>	<p>No.: 11</p> <p><b>B</b></p> <p>This is quite a difficult question! The combination of a monoarthritis and a neuropathy should make you think of chronic Lyme disease. His occupation as a farmer (likely to be exposed to tick bites) and the location of Southampton (close to the New Forest and the Lyme Disease Reference laboratory!) are also important clues. Doxycycline or amoxicillin are recommended for the treatment of Lyme arthritis but ceftriaxone should be used if there is neurological involvement. In patients who fail to respond to antibiotics arthroscopic synovectomy may reduce pain and restore function. Intra-articular steroids have also be used. As the appropriate antibiotics are not given as a response the answer should be B or D. B seems more appropriate as this may help to restore function to the immobile joint and use of intrarticular steroids has been associated with development of treatment resistant Lyme disease.</p>



<p>No.: 12</p> <p>A 42--year-old CPN is referred to clinic after a routine health check revealed an ALT of 68 iu/l and the following results :  Hepatitis A IgG positive  Hepatitis B surface antibody positive  Hepatitis C enzyme immunoassay positive. Which test would you request next :</p> <p>Options</p> <p>A. Scan of the liver  B. Hepatitis A IgM antibody  C. Hepatitis B surface antigen  D. PCR for hepatitis C RNA  E. Liver biopsy</p>	<p>No.: 12</p> <p>D</p> <p>Patients found to be Hepatitis C antibody positive should have a PCR test for Hepatitis C RNA. A positive result suggests that the patient is currently viraemic. Viraemic patients should then undergo liver biopsy, regardless of the LFT's to assess degree of inflammation and fibrosis and hence the need for treatment.</p> <p>The British Society of Gastroenterology Guidelines on the management of Hepatitis C can be found at <a href="http://www.bsg.org.uk/pdf_word_docs/clinguidehepc.pdf">http://www.bsg.org.uk/pdf_word_docs/clinguidehepc.pdf</a></p>
<p>No.: 13</p> <p>Three months after a successful renal transplant a patient presents with diarrhoea, arthralgia and a fever .  Creatinine 157 <math>\mu</math>mol/l ,  ALT 112 iu/l ,  WBC <math>3.2 \times 10^9/l</math> ,  Monospot negative .</p> <p>What is the most likely diagnosis?</p> <p>Options</p> <p>A. Acute Graft-Versus-Host-Disease  B. Acute hepatitis C infection  C. Acute CMV infection  D. Cryptosporidiosis  E. Gram negative urinary tract infection</p>	<p>No.: 13</p> <p>C</p> <p>Acute CMV infection from the donor organ usually occurs during the first 2 to 6 months after transplantation and is exceedingly rare after 6 months, up to 2/3rds of febrile episodes during this period are due to CMV. It presents with fever, myalgia, anorexia and fatigue. Elevated transaminase levels may also occur. Involvement of the GI tract may lead to diarrhoea. Acute graft versus host disease is most commonly seen in bone marrow transplant recipients although it has been described following solid organ transplantation. It consists of the triad of dermatitis, enteritis and hepatitis. The absence of a characteristic erythematous macular rash is against this diagnosis. The mean incubation period of hepatitis C infection is 7 weeks and leads to raised ALT but is otherwise usually asymptomatic. Cryptosporidiosis is well described in renal transplant patients where it presents with severe diarrhoea and the associated dehydration. It is not associated with fever or abnormal LFT's. Bacterial infections (Wound, UTI's) are commonest during the 1st week after transplantation.</p>



No.: 14

Three months after a successful renal transplant a patient presents with diarrhoea, arthralgia and a fever. Creatinine 157  $\mu$ mol/l, ALT 112 iu/l, WBC  $3.2 \times 10^9$ /l, Monospot negative. You see the same patient the following year in clinic. He again feels feverish and complains of a headache. The graft is functioning well on a new monoclonal pan-T-cell antibody (OKT3) and tacrolimus (FK506). You arrange a lumbar puncture: Lymphocytes 74/mm<sup>3</sup>, Protein 0.73g/l, Glucose 2.1mmol/l, Cryptococcal antigen negative .

What would be your empirical therapy :

Options

- A. Amphotericin
- B. Rifabutin, clarythromycin and ethambutol
- C. Ampicillin
- D. Ceftriaxone
- E. Ganciclovir

No.: 14

C

Listeria is a relatively frequent cause of meningitis following renal transplantation, especially in those requiring high dose immunosuppression. It is treated with high dose ampicillin +/- gentamicin.

No.: 15

A 29--year-old Latvian taxi-driver presents with a three week history of abdominal swelling and fevers. Ultrasound scan shows a mildly enlarged liver and peritoneal aspiration reveals a straw coloured fluid with 350 WBC /mm<sup>3</sup>, protein 0.53 g/dl and no organisms seen on Gram stain. Whilst waiting for this result a Mantoux test is performed. At 72 hours there is 5mm induration .

What is the most likely conclusion :

Options

- A. The patient has active Mycobacterium tuberculosis
- B. The patient has spontaneous bacterial peritonitis
- C. The patient was exposed to M tuberculosis as a child
- D. The patient has been vaccinated with BCG
- E. The patient has HIV

No.: 15

BM

An ascitic fluid WBC count of  $>500$  cells/mm<sup>3</sup> is the single best predictor of SBP, with a sensitivity of 86% and specificity of 98%. Lowering this to  $>250$  cells/mm<sup>3</sup> results in an increased sensitivity (93%) but lower specificity (94%). Gram stain is only positive in 10% of cases due to the small number of bacteria involved. In tuberculous peritonitis the cells are predominantly lymphocytes. A protein concentration of  $>2.5$ g/dl indicates an exudate. Measurement of adenosine deaminase in ascitic fluid has been suggested as a useful marker of tuberculous peritonitis. 5mm of induration following a Mantoux test is not consistent with active TB, previous exposure or vaccination with BCG but may occur in tuberculous peritonitis or miliary TB.





<p>No.: 16</p> <p>A 29--year-old Latvian taxi-driver presents with a three week history of abdominal swelling and fevers. Ultrasound scan shows a mildly enlarged liver and peritoneal aspiration reveals a straw coloured fluid with 350 WBC /mm<sup>3</sup>, protein 53 g/l and no organisms seen on Gram stain. You review the patient in clinic after two months of rifampicin, isoniazid, pyrazinamide and ethambutol. He still has ascites but the fevers have improved. The HIV test was negative. M. tuberculosis has been isolated from the ascitic fluid .</p> <p>What would you do next :</p> <p>Options</p> <p>A. Examine the urine B. Send the isolate for in PCR to detect rifampicin resistance C. Prescribe spironolactone D. Prescribe prednisolone E. Repeat the ascitic tap</p>	<p>No.: 16</p> <p><b>B</b></p> <p>An ascitic fluid WBC count of &gt;500 cells/mm<sup>3</sup> is the single best predictor of SBP, with a sensitivity of 86% and specificity of 98%. Lowering this to &gt;250 cells/mm<sup>3</sup> results in an increased sensitivity (93%) but lower specificity (94%). Gram stain is only positive in 10% of cases due to the small number of bacteria involved. In tuberculous peritonitis the cells are predominantly lymphocytes. A protein concentration of &gt;2.5g/l indicates an exudate. Measurement of adenosine deaminase in ascitic fluid has been suggested as a useful marker of tuberculous peritonitis. 5mm of induration following a Mantoux test is not consistent with active TB, previous exposure or vaccination with BCG but may occur in tuberculous peritonitis or miliary TB. Latvia has a very high incidence of MDR TB. Rapid confirmation of resistance can be confirmed by PCR for mutations in the RpoB gene, associated with rifampicin resistance, a marker of multidrug resistance</p>
<p>No.: 17</p> <p>A 16--year-old boy is brought to A&amp;E by his mum with a macular rash and high fever. The week before he developed a sore throat which was treated by his GP with antibiotics. On examination he also has an exudative pharyngitis and axillary lymphadenopathy. The CRP is 17 and the blood film shows atypical lymphocytes. EBV IgM and ASOT come back as negative. The ALT is 69 iu/l. The boy has never been abroad .</p> <p>He has recently got a new girlfriend and his parents have acquired a cat. Which one of the following tests would you request :</p> <p>Options</p> <p>A. Monospot heterophile antibody B. CMV IgM C. HIV antibody test D. Toxoplasma latex agglutination E. Throat swab</p>	<p>No.: 17</p> <p><b>C</b></p> <p>The differential diagnosis of mononucleosis type syndromes includes EBV, CMV, toxoplasmosis, HIV seroconversion illness, Rubella and hepatitis A. A Monospot would not be helpful as this is used as a screening test for EBV IgM, which is already negative in this case. Pharyngitis is not a marked feature of CMV infection. Rash is common in HIV seroconversion and also occurs in CMV, EBV after ampicillin administration but not in toxoplasmosis. Bacterial infection is unlikely due to the negative ASOT and the low CRP</p>





No.: 18

A 29-year-old Latvian taxi-driver presents with a three week history of abdominal swelling and fevers. Ultrasound scan shows a mildly enlarged liver and peritoneal aspiration reveals a straw coloured fluid with 350 WBC /mm<sup>3</sup>, protein 53 g/l and no organisms seen on Gram stain. Which diagnostic investigation would you arrange?

Options

- A. Liver biopsy
- B. Hepatitis B surface antigen
- C. Laparoscopy
- D. Auramine stain
- E. Culture of aspirate

No.: 18

C

An ascitic fluid WBC count of >500 cells/mm<sup>3</sup> is the single best predictor of SBP, with a sensitivity of 86% and specificity of 98%. Lowering this to >250 cells/mm<sup>3</sup> results in an increased sensitivity (93%) but lower specificity (94%). Gram stain is only positive in 10% of cases due to the small number of bacteria involved. In tuberculous peritonitis the cells are predominantly lymphocytes. A protein concentration of >2.5g/l indicates an exudate. Laparoscopy, where tuberculous lesions can be visualised in the peritoneum, has been proposed as the gold standard test for diagnosing intra-abdominal TB. Stains for AFB are seldom positive and culture takes 6-8 weeks, even then the organism may not be grown.





No.: 19

A 48-year-old ex-professional tennis player returns from a European tournament early as he started abroad with abdominal pain, high fever, shivering and sweating. He was given cefotaxime by a local doctor without effect. On his return home he now complains of a severe headache and right subcostal pain. On examination he has a temperature of 39.2°C and some photophobia but no neck stiffness. He is confused and disorientated thinking he is still in Seville. Some small lymph nodes are palpable in the neck, he is tender in the right upper quadrant and some basal crackles can be auscultated at the left base.

Na 123mmol/l  
Hb 129g/l  
K 4.2 mmol/l  
WCC 11.8x10<sup>9</sup> /l  
Urea 12.5mmol/l  
Plat 112 x10<sup>9</sup> /l  
Creat 84 μmol/l  
ESR 28 mm/hr  
Bilirubin 112 μmol/l  
AST 499 iU/l  
ALT 574 iU/l

Urine: glucose +, ketones +, protein +, blood +++

Suggest one further investigation to help the differential diagnosis:

Options

- A. Atypical serology
- B. Chest CT
- C. Bronchoscopy and lavage
- D. Cold agglutinins
- E. Arterial blood gases

No.: 19

A

The presentation is consistent with atypical pneumonia, probably due to *Legionella pneumophila*, atypical serology on acute and convalescent serum would be the most appropriate test to confirm the diagnosis.





No.: 20

A 48-year-old ex-professional tennis player returns from a European tournament early as he started abroad with abdominal pain, high fever, shivering and sweating. He was given cefotaxime by a local doctor without effect. On his return home he now complains of a severe headache and right subcostal pain. On examination he has a temperature of 39.2°C and some photophobia but no neck stiffness. He is confused and disorientated thinking he is still in Seville. Some small lymph nodes are palpable in the neck, he is tender in the right upper quadrant and some basal crackles can be auscultated at the left base.

Na 123mmol/l  
Hb 129g/l  
4.2mmol/l  
WCC 11.8x10<sup>9</sup>/l  
Urea 12.5mmol/l  
Plat 112 x10<sup>9</sup> /  
Creat 84μmol/l

ESR 28 mm/hr  
Bilirubin 112μmol/l

AST 499 iU/l  
ALT 574 iU/l

Urine: glucose +, ketones +, protein +, blood ++

What is the treatment :

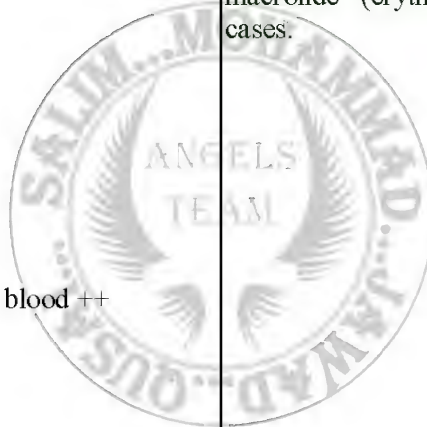
Options

- A. Piperacillin
- B. Cotrimoxazole
- C. Teicoplanine
- D. Erythromycin
- E. Acyclovir

No.: 20

D

Legionnaires disease usually starts with a nonspecific prodrome, including fever, myalgias, malaise, and headache. A temperature of 40°C (104°F) or higher should increase the index of suspicion. Almost one third of patients have pleuritic chest pain. A depressed mental state or agitation is a common feature on admission. Hyponatremia (serum sodium concentration <130 mEq/L) is seen in almost 40% of cases and occurs significantly more often in legionnaires' disease than in pneumonias linked with other causes. In severe cases many laboratory abnormalities can be seen. Hepatic dysfunction, manifested by abnormal liver enzyme levels and moderate increases in serum aminotransferase and bilirubin levels, is common. Hematuria also occurs, and glomerulonephritis with pulmonary-renal syndrome has been described in some patients. Treatment is with a macrolide (erythromycin) plus rifampicin for severe cases.





<p>No.: 21</p> <p>A 19-year-old man presents with a short history of headache, fever, sore throat and bilateral cervical lymphadenopathy. The peripheral blood film shows atypical lymphocytes. Which is the least useful test :</p> <p>Options</p> <p>A. Monospot B. C-reactive protein C. P24 antigen D. CMV IgM E. Fine needle aspiration</p>	<p>No.: 21</p> <p><b>B</b></p> <p>The differential diagnosis lymphadenopathy includes :</p> <p>Infections: EBV, CMV, rubella, HIV, localised suppurative bacterial infection, cat scratch disease, typical / atypical mycobacteria, syphilis, leptospirosis, toxoplasmosis</p> <p>Malignancy: lymphoma, leukaemia, histiocytosis</p> <p>Other: Sarcoidosis, Kawasaki's disease, connective tissue diseases</p> <p>In young patients the cause is usually a viral infection and appropriate investigations include monospot / EBV IgM, CMV IgM, p24 Ag / HIV RNA. CRP is usually normal in viral infections.</p>
<p>No.: 22</p> <p>A month after returning from a field trip to the Sudan, an anthropologist is referred to clinic with intermittent fevers, lethargy and a palpable spleen. Three blood films are negative for parasites, two sets of blood cultures show no growth at 48 hours and urine microscopy is normal. Which is the most useful investigation :</p> <p>Options</p> <p>A. Bone marrow aspiration B. Splenic aspiration C. Schistosoma ELISA D. Trans-oesophageal echocardiogram E. Chest radiograph</p>	<p>No.: 22</p> <p><b>A</b></p> <p>Tropical causes of splenomegaly include; typhoid, TB, malaria, Dengue, Schistosomiasis, leptospirosis, brucellosis, trypanosomiasis, and visceral leishmaniasis. Most of these are ruled out by the negative blood cultures and parasite films. Recent epidemics of visceral leishmaniasis due to <i>L. donovani</i> have occurred in Sudan. <i>L. donovani</i> can be isolated from the spleen in 95% and the bone marrow in 70-85% of cases. The best single test to perform would be bone marrow aspiration for microscopy and culture (TB, leishmania and typhoid) and also histology to exclude a non-infectious cause e.g. lymphoproliferative disease.</p>





No.: 23

A 33-year-old previously well English lady, 33 weeks pregnant, presents to A&E because she has not felt foetal movements for 3 days and has had regular contractions for 2 hours. She gives a history of fever for 3 weeks. Six weeks before she became ill she was on holiday in Italy. On examination she looks fairly well but has a fever of 38.9°C. Her neutrophil count is  $19 \times 10^9/L$ , with left shift and toxic granulation on the film. 6 hours after admission she is delivered of a dead baby. Her blood, the amniotic fluid and swabs from the baby all grow a beta-haemolytic gram-positive rod. Which is the most appropriate treatment :

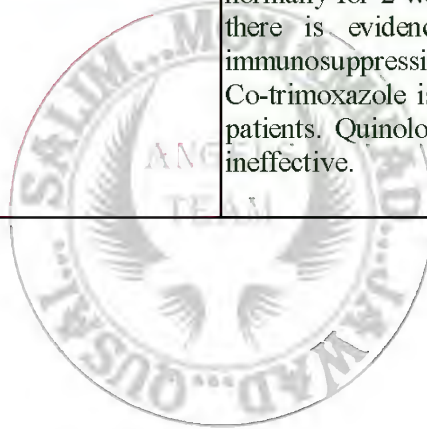
Options

- A. Iv Ceftriaxone 2g bd
- B. Iv Ampicillin 2g tds and iv Gentamicin 80 mg bd
- C. Iv Cefuroxime 750 mg tds and iv Metronidazole 500mg tds
- D. Iv Ampicillin 2g tds
- E. Oral Ciprofloxacin 500mg bd

No.: 23

D

The diagnosis is *Listeria monocytogenes* infection. (This question may also serve to remind you to add in ampicillin when treating meningitis in the very young or old.) Especially at risk of disease are neonates, elderly, pregnant and immunocompromised patients. Most symptomatic infections in pregnancy occur in the third trimester and are often self-limiting. However, premature labour is common, and 20% of perinatal infections lead to stillbirth or neonatal death. Soft cheeses are famously implicated, but infection may follow ingestion of a very wide variety of meat, vegetables or dairy products. *Listeria* is an important cause of meningoencephalitis in the very young and the elderly. *Listeria* can also cause febrile gastroenteritis in people outside the traditional risk groups. There have been no controlled trials of treatment. Ampicillin is the treatment of choice, normally for 2 weeks. Gentamicin is added for synergy if there is evidence of CNS disease, endocarditis or immunosuppression (which there was not in this case). Co-trimoxazole is an alternative to ampicillin in allergic patients. Quinolones may be useful. Cephalosporins are ineffective.





No.: 24

A 51-year-old previously well English man presents with a six-week history of malaise, dry cough, fever and progressive shortness of breath. On examination he is flushed, febrile, cyanosed and tachypnoeic at rest.

Arterial blood gases on air show a PO<sub>2</sub> of 5.9 with a normal PCO<sub>2</sub>.

Haemoglobin is 11.2g/dL.

White cell count, platelets, electrolytes, creatinine and liver function tests are normal.

Albumin is 29g/L.

Chest X-Ray shows interstitial shadowing throughout both midzones.

Which treatment is most appropriate within the first 24 hours:

Options

A. Iv Cotrimoxazole 960mg bd

B. Iv Cotrimoxazole 120mg/kg/day

C. Urgent bronchoalveolar lavage and iv Cotrimoxazole 120mg/kg/day

D. Iv Cotrimoxazole 120mg/kg/day, iv Cefuroxime 750mg tds and iv Clarithromycin 500mg bd

E. Iv Cotrimoxazole 120mg/kg/day and iv Methylprednisolone 500mg bd

No.: 24

E

The diagnosis is severe *Pneumocystis carinii* pneumonia, and this history is typical. We can assume he is HIV+ve. First line treatment is with high dose iv Co-trimoxazole. Co-trimoxazole reactions (usually rash) are common and may be severe. An alternative treatment is primaquine & clindamycin, or dapsone & trimethoprim. In severe disease the addition of corticosteroids improves outcome and reduces mortality. Steroids should be used if the PO<sub>2</sub> is < 8 kPa. Empirical antibacterial cover is not unreasonable but not obviously indicated. This man is not fit for a bronchoscopy ♦ he is too hypoxic. If he improves, bronchoscopy will be appropriate, as the BAL can still be positive some days into treatment.



<p>No.: 25</p> <p>A 17-year-old girl on a transplant unit develops a respiratory illness 5 weeks after a bone marrow transplant for Acute Lymphocytic Leukaemia . After 48 hours of symptoms she is febrile and hypoxic and looks very ill . CT Thorax shows scattered infiltrates throughout both lung fields . Her haemoglobin is 9.4g/dL . Her neutrophil count, platelets, electrolytes and creatinine are within the normal range . In the past 10 days, three other patients on the unit developed similar illnesses . One is improving on the unit, one was transferred to ITU and one died .</p> <p>Which of the following provides both a likely diagnosis for this patient, and an appropriate treatment for that diagnosis :</p> <p>Options</p> <p>A. CMV pneumonitis ♦ treated with iv cidofovir</p> <p>B. Invasive aspergillosis ♦ treated with iv amphotericin B</p> <p>C. Parainfluenza virus ♦ treated with inhaled ribavirin</p> <p>D. PCP ♦ treated with iv cotrimoxazole</p> <p>E. Pseudomonas aeruginosa ♦ treated with iv Piperacillin/Tazobactam</p>	<p>No.: 25</p> <p><b>C</b></p> <p>This question reminds you of some of the important pulmonary infections in immunocompromised transplant recipients. All the diagnoses offered are very plausible. The clinical presentations are not particularly distinct from one another, and in clinical practice treatment tends to be swift, empirical and polypharmaceutical, because such illnesses may progress very rapidly. CMV pneumonitis is very common in such a setting, but the first line treatment is normally ganciclovir. Cidofovir (which may cause severe nephrotoxicity) is reserved for those in whom ganciclovir and foscarnet are inappropriate. Invasive aspergillosis could easily look like this (and amphotericin B would be appropriate), but more commonly occurs in patients who are neutropenic. Parainfluenza virus, particularly type 3, can cause very severe pneumonia in transplant recipients and may occur in major outbreaks with high mortalities. Diagnosis of Parainfluenza virus is ideally by virus isolation, from nasopharyngeal secretions or bronchoalveolar lavage. Aerosolised and intravenous ribavirin have both been used and reported anecdotally to be helpful, although there are no good trials. PCP is common in this setting too, and seems to have a considerably more rapid clinical onset in transplant recipients than in HIV positive patients, but it does not typically cause outbreaks. The same is true of Pseudomonas, for which piperacillin/tazobactam would be appropriate treatment while awaiting sensitivities.</p>
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No.: 26

A 45-year-old Nigerian man who came to the UK three months ago attends an HIV centre requesting an HIV test, which is positive. He gives a history of liquid non-bloody diarrhoea 8-10 times daily for 4 months with 15 kg weight loss. On examination he looks fairly well and afebrile but very thin with signs of recent weight loss, dry skin and oral candida .

His CD4 count is  $70 \times 10^6/L$  and his viral load is 200,000 copies/ml .

Hb 10.3 g/dL, platelets 83, white cell count normal, renal and liver function tests normal, albumin 28g/L .

Repeated stool cultures for bacteria are negative, but stool microscopy shows *Cryptosporidium parvum* oocysts and *Entamoeba coli* cysts .

Mycobacterial stool cultures grow *Mycobacterium Avium Intracellulare* after 7 weeks .

He declines lower GI endoscopy but is otherwise cooperative. His candida resolves with fluconazole, but otherwise there is no improvement at successive outpatient appointments over 2 months .

What treatment is most appropriate :

Options

A. Antiretroviral combination therapy (ART) with zidovudine, lamivudine & nevirapine

B. ART as above with ciprofloxacin 500mg po for 10 days

C. Metronidazole 800mg tds for 5 days followed by diloxanide furoate 500mg tds for 10 days followed by ART as above

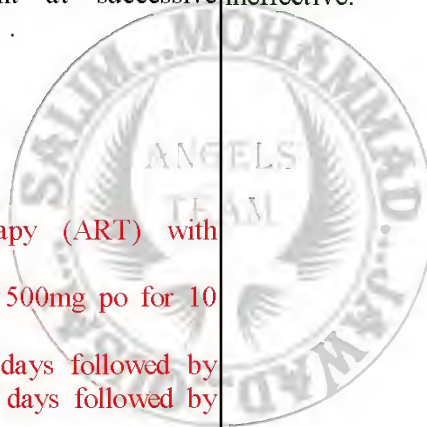
D. Rifabutin, clarithromycin, ciprofloxacin and ethambutol for 6 months then ART as above

E. Paromomycin orally for 2 weeks, then ART as above

No.: 26

A

This question reminds you that antiretroviral combination therapy is the mainstay of the management of advanced HIV disease. The diarrhoea is probably due to a combination of HIV enteropathy and cryptosporidiosis. Many opportunistic infections that previously caused great morbidity and mortality in AIDS may now resolve with ART alone, and *Cryptosporidium* and MAI are examples of this. Ciprofloxacin is not indicated, as stool bacterial cultures were repeatedly negative. *Entamoeba coli* is not pathogenic (*Entamoeba histolytica* may be) and does not require treatment. The patient is not systemically unwell with his MAI and the treatment has many potential toxicities, although the merits of treating are perhaps worth considering. There is no effective antimicrobial against *Cryptosporidium* ♦ paromomycin was tried at one time, but proved ineffective.





No.: 27



35year-old Somali refugee .

10y Hx of slowly growing swelling L foot Mild pain - still walking .

Recent draining fistula with white grains .

No fever or systemic symptoms .

What is the diagnosis :

Options

- A. Staphylococcal abscess
- B. Gout with secondary bacterial infection
- C. Actinomycosis with osteomyelitis
- D. Malunion of fracture with bacterial superinfection
- E. Madura foot

No.: 27

C

- ☐ Local inoculation
- ☐ Sulphur granules ☐
- ☐ Gram +ve bacteria
- ☐ Rx: penicillin (long term)
- ☐ Differential diagnosis
- ☐ TB
- ☐ Madura foot
- ☐ Chronic Staph. Infection
- ☒ Malignancy

No.: 28



Farmers

Painless colourless blisters that ulcerate

Initially no fever or adenopathy ♦ then painful lymph nodes

Afebrile, no clinical signs

WCC-N, CXR normal

What is the diagnosis :

Options

- A. Actinomycosis
- B. TBC
- C. Anthrax
- D. Leptospirosis

No.: 28

C

Gram positive bacillus

Local inoculation

Papule ♦ blister

Blackens-ulcerates with black eschar

Lesions painless but LN are painful

Constitutional upset rare

Rx- Pen G or ciprofloxacin

No.: 29



The most likely diagnosis in a 50-year-old homosexual male is :

Options

- A. Candidal retinitis
- B. Grade II hypertensive retinopathy
- C. Non-proliferative diabetic retinopathy
- D. Grade IV hypertensive retinopathy
- E. CMV retinitis

No.: 29

E

Although a poor image, this most likely represents CMV retinitis, examination of the retina revealing haemorrhages and exudates, that follow the vasculature of the retina, pizza pie appearance. Clinically the patients present with floaters, loss of visual acuity and field loss



No.: 30

A 68-year-old patient develops a temperature of 38°C. She is receiving TPN following a recent revision of a pancreatectomy and partial gastrectomy. She has some dependent oedema but examination is otherwise normal. Staphylococcus epidermidis is grown from 1/2 blood culture bottles taken via the TPN line .

What is your advice to the surgical team :

Options

- A. Give a 2 week course of ceftazidime
- B. Give a 1 week course of vancomycin
- C. Stop TPN, re-culture peripherally and via the line .
- D. Remove the TPN line and give a 1 week course of antibiotics
- E. Re-culture and arrange a CT scan of the abdomen

No.: 30

C

it is important to identify whether the line is the source of infection or whether it is a septicaemia. If the peripheral cultures are negative and repeat TPN line cultures are positive, then it is an indication to change the line. If repeat cultures are negative peripherally and from the TPN line, then the initial isolate might be a contaminant .

Line sepsis and nosocomial infections

Gram negative organisms

Pseudomonas

Klebsiella

Enterobacter

Coliforms

Gram positive organisms

Staphylococcus aureus

MSSA and MRSA)

Coagulase negative Staph

Candida

Anaerobes





<p>No.: 31</p> <p>A 22-year-old law student is referred to clinic with a six month history of weight loss and abdominal pains, particularly in the right iliac fossa. He has kept a temperature chart which shows no fevers. He was born in Britain and has spent all his life in West London but is of Indian parentage .</p> <p>Hb 11.2 ◊ MCV 78 ◊ WCC 8.7 ◊ Plts 650 ◊ CRP 54 ◊ USS abdo normal</p> <p>Which investigation would you do next :</p> <p>Options</p> <p>A. Heaf test B. Stool culture and microscopy C. Flexible sigmoidoscopy D. Small bowel follow-through study E. Laparotomy</p>	<p>No.: 31</p> <p><b>D</b></p> <p>It is important here to differentiate between intestinal TB and crohns disease. Clinical features of intestinal TB include abdominal pain, weight loss, anemia, and fever with night sweats (which seem to be absent here). Involvement of the terminal ileum results in right iliac fossa pain, or a palpable mass in the right iliac fossa. Laboratory tests may reveal anemia and a normal WBC count. Tuberculin skin test results are negative in most patients with primary intestinal TB. A small bowel follow through would be able to show the cobblestone appearance to the mucosa which is a feature seen in Crohn disease that is not seen in TB. The elevated platelet count could be explained by intermittent blood loss, the raised CRP is an indication of active disease.</p>
<p>No.: 32</p> <p>A young woman presents to A&amp;E with two brief generalised seizures. She grew up in London and was previously well. Examination is normal other than a few axillary lymph nodes .</p> <p>CRP 7 . Hb 13 ◊ WCC normal ◊ Platelets 133 .</p> <p>CT head shows multiple discrete lesions with no evidence of raised intracranial pressure or hydrocephalus .</p> <p>Which test would you do next :</p> <p>Options</p> <p>A. Brain biopsy B. Toxoplasma latex agglutination C. Serology for Echinococcus D. Stool microscopy for Taenia solium E. HIV test</p>	<p>No.: 32</p> <p><b>E</b></p> <p>Taenia solium is the cause of cysticercosis which may present with multiple cerebral lesions and fits, however there is no history of travel to an endemic region. Echinococcus granulosus may rarely cause hydatid cysts in the brain (1%) and does occur in England but predominantly in rural areas. Presentation of cerebral toxoplasmosis with fits is strongly indicative of reactivated disease associated with immunosuppression, the patient should therefore be counselled and offered an HIV test</p>



<p>No.: 33</p> <p>A 67-year-old man is transferred to ITU following elective repair of an abdominal aortic aneurysm. He has a temperature of 38°C and looks well. His abdominal wound is healing well. Repeated blood cultures grow <i>Klebsiella</i> species. CXR normal, CRP 178 .</p> <p>What would you do next :</p> <p>Options</p> <p>A. Remove the central line and observe B. Prescribe two weeks of vancomycin C. Abdominal CT should be ordered D. Arrange a trans-oesophageal echocardiogram E. Arrange a white cell scan</p>	<p>No.: 33</p> <p><b>C</b></p> <p>A persistent <i>Klebsiella</i> bacteraemia suggests an intrabdominal focus of infection. The most likely cause is infection of the aorta graft or an aortaenteric fistula. Abdominal CT is the most available technique for imaging the graft although a white cell scan is an appropriate alternative. Vancomycin has no activity against Gram negative bacteria. If a central line is in situ further blood cultures, both centrally and peripherally should be taken to determine if the line is a focus of infection, although <i>klebsiella</i> species only rarely cause line infections.</p>
<p>No.: 34</p> <p>A month after returning from a field trip to the Sudan, an anthropologist is referred to clinic with intermittent fevers, lethargy and a palpable spleen. Three blood films are negative for parasites, two sets of blood cultures show no growth at 48 hours and urine microscopy is normal .</p> <p>Which is the most useful investigation :</p> <p>Options</p> <p>A. Bone marrow aspiration B. Splenic aspiration C. Schistosoma ELISA D. Trans-oesophageal echocardiogram E. Chest radiograph</p>	<p>No.: 34</p> <p><b>A</b></p> <p>The travel history, fever, lethargy and splenomegaly all suggest visceral leishmaniasis. The diagnosis is made by observing Leishman - Donovan bodies in bone marrow or splenic aspirates. Bone marrow aspiration is a safer technique and will exclude a haematological malignancy, also in the differential diagnosis. Schistosomiasis is unlikely due to the normal urine microscopy and endocarditis unlikely due to the negative blood cultures.</p>
<p>No.: 35</p> <p>Seven weeks after returning from rural Ghana, a 16-year-old boy develops fever and rigors .</p> <p>The least useful test is :</p> <p>Options</p> <p>A. Thick and thin blood film B. IgM for viral haemorrhagic fever C. Chest radiograph D. Blood cultures E. HIV antibody test</p>	<p>No.: 35</p> <p><b>B</b></p> <p>Malaria is the most likely tropical diagnosis; therefore, multiple thick and thin blood films are essential .</p> <p>CXR and blood cultures are needed to rule out a respiratory infection or systemic sepsis .</p> <p>Viral haemorrhagic fever should be considered in the differential diagnosis if the patient has returned from an endemic area within the last 21 days; 7 weeks is too long, the incubation period is 2-21 days.</p>



No.: 36

A 79-year-old English woman is admitted with a 5 week history of low back pain. On admission she is febrile and investigations demonstrate a normocytic anaemia with raised inflammatory markers. Lumbar spine X-ray suggests, and MRI and bone scans confirm, extensive osteomyelitis of the bodies of L4 and 5, and L4/5 intervertebral discitis. Blood cultures grow a methicillin-sensitive *Staphylococcus aureus* in 5 out of 6 bottles. After 2 weeks of intravenous flucloxacillin 2g qds her back pain is improved and her inflammatory markers are normal. The decision is made to discharge her, and to continue her treatment with at least another 4 weeks of oral antibiotics .

Of the following oral antibiotics, which would be the least useful in the prolonged treatment of osteomyelitis/discitis due to *Staphylococcus aureus* :

Options

- A. Ciprofloxacin
- B. Penicillin V
- C. Rifampicin
- D. Fusidic Acid
- E. Clindamycin

No.: 36

B

The diagnosis of osteomyelitis is primarily by imaging. Plain X-ray, CT, radionuclide bone scanning and MRI can all be useful. MRI is the most sensitive examination but is often unnecessary. If the organism is not isolated from blood cultures it should ideally be sought from a biopsy of the affected area. Antibiotics should be given for at least 4 and usually 6 weeks, and should be continued for longer if the inflammatory markers do not settle in this time. The first two weeks of treatment should be intravenous. In choosing the appropriate antibiotic, there are three considerations; will the organism be sensitive, is the antibiotic well absorbed by mouth, and does the antibiotic have good penetration of bone and cartilage? *Staphylococci* generally produce penicillinase that will give them resistance to Penicillin V (phenoxymethyl penicillin) which is not well absorbed orally anyway. Ciprofloxacin, Rifampicin, Fusidic acid and Clindamycin have all been used for staphylococcal bone infections with good effect. Also, they act on protein synthesis, rather than cell wall synthesis, and so are useful when the bacteria are relatively dormant and not dividing. Clindamycin has particularly good bone penetration. It is common to use two drugs in the oral phase of treatment.





<p>No.: 37</p> <p>A 27-year-old Canadian nurse attends as a casualty with a two day history of sudden onset fever and cough. On examination she looks well but is febrile at 38.8oC, is coughing and has bilateral basal crackles. On admission FBC is normal, ALT and AST are raised at 62 and 84 respectively, PO2 is 9.6 on air and CXR is normal. Twelve days ago she spent about four minutes with a patient with possible SARS in an A&amp;E department in Toronto .</p> <p>Which of the following would be the most appropriate course of action :</p> <p>Options</p> <p>A. Send her home, advising her to stay indoors until well, and to contact her GP if she gets worse .</p> <p>B. Admit, isolate and treat her with iv ribavirin &amp; methylprednisolone 250mg od until she has been well and afebrile for 48 hours .</p> <p>C. Admit, isolate and treat as above until reference lab PCR of serum, stool and nasal secretions for Coronavirus is negative .</p> <p>D. Admit, isolate and observe until reference lab PCR of serum, stool and nasal secretions for Coronavirus is negative</p> <p>E. Admit, isolate, treat with a beta-lactam and a macrolide and discharge once she has been well and afebrile for 48 hours.</p>	<p>No.: 37</p> <p>E</p> <p>(This note was written 23 April 2003) Severe Acute Respiratory Syndrome (SARS) is a new infectious disease first identified in March 2003, with a case fatality of around 4%. Health care workers can be readily infected from patients. The incubation period is about 1-10 days. The aetiology and route of infection are not known, although a novel Coronavirus has been implicated. The illness presents as an atypical pneumonia. Fever and cough are almost universal. Crackles and mildly abnormal LFTs are commonly found. CXR usually shows air space shadowing on presentation but may be normal. The case definition is clinical, as the sensitivity, specificity and relevance of specific virological investigations is unknown. Coronavirus PCR is often negative in those who have the disease clinically. The decision to admit should be made on clinical, not infection-control, grounds (ie how ill is the patient?). Mild cases should stay at home and be managed by the GP. Treatment with Ribavirin and steroids have all been described but there is no evidence of efficacy and these cannot be considered a standard of care. Ill patients should be treated supportively, with appropriate antibiotics to cover the possibility of ordinary atypical pneumonia. Suspected cases should be discharged after they have been well for 48 hours. The guidelines (including case definitions) change as knowledge increases, and can be found at <a href="http://www.phls.org.uk/topics_az/SARS/">www.phls.org.uk/topics_az/SARS/</a></p>
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No.: 38

A 28-year-old Nigerian man presented with a 2 week history of headache. He had lived in the UK since the age of 8 years and had there was no history of recent foreign travel. Two years earlier he was diagnosed with Stage 1a Hodgkin's lymphoma (fully treated) and Behçet's disease, for which he was being treated with azathioprine. On examination he looked well and afebrile. CT brain was normal. Lumbar puncture was performed, and clear colourless CSF formed a fountain at the top of the 40 cm manometer .

Initial CSF results were RBCs 2/cmm ,

WBC 68/cmm (95% lymphocytes) ,

Gram stain negative ,

CSF protein 0.85 ,

CSF glucose 2.8 (blood glucose 6.9) .

Which of the following treatments is most likely to be appropriate :

Options

A. Rifampicin, Isoniazid, Pyrazinamide & Ethambutol for 2 months, followed by Rifampicin and Isoniazid for a further 4 months .

B. Rifampicin, Isoniazid, Pyrazinamide & Ethambutol for 2 months, followed by Rifampicin and Isoniazid for a further 10 months .

C. Intravenous aciclovir 10mg/kg 8 hourly

D. Amphotericin B 0.4 mg/kg/day and flucytosine 150mg/kg/day

E. Further aggressive chemotherapy and radiotherapy

No.: 38

D

This question serves as a reminder of the causes of lymphocytic meningitis. Important infectious causes include TB, syphilis, Cryptococcus, Lyme and viral meningitis. Important no-infectious causes include cancers and lymphomas, sarcoid, and Behçet's disease itself .

If this were TB meningitis it should be treated as in B, for twelve months. In HSV encephalitis the CSF may appear normal, and the diagnosis of this is suggested by the imaging and confirmed by CSF PCR . the treatment described in C is appropriate .

Cryptococcal meningitis may be insidious or acute in onset. It may present with CNS symptoms, or simply with fever, or the patient may be almost asymptomatic. Diagnosis is usually by India Ink staining of the CSF (the Cryptococci show up because their large capsules stand out against the ink background) but extended CSF culture, and serum and CSF Cryptococcal antigen are also important in making the diagnosis. This question underlines the vital importance of recognising the patient to be immunocompromised . without this step, the potentially life-saving diagnostic investigations will not routinely be done. The disease can present in the immunocompetent also. The treatment is as described in the question, usually for at least 4-6 weeks. Oral fluconazole may also be effective in milder cases. Very high CSF opening pressures are often found, necessitating multiple lumbar punctures to take off the accumulated CSF. This is a real patient . he had cryptococcal meningitis, readily seen on India Ink staining of the CSF. He responded well to amphotericin and flucytosine, but eventually needed a lumbo-peritoneal shunt. He tested HIV-negative.



<p>No.: 39</p> <p>30 school students went on a summer camp which involved recreational water activities. One of the students complained of fever with chills, intense myalgias and vomiting. On examination, the child had conjunctival suffusion, muscle tenderness, hepatomegaly &amp; mild jaundice. Leptospirosis was suspected. To prevent infection of the other students, the camp doctor should give chemoprophylaxis with :</p> <p>Options</p> <p>A. Ampicillin B. Amoxicillin C. Doxycycline D. Penicillin G E. Erythromycin</p>	<p>No.: 39</p> <p><b>C</b></p> <p>Leptospirosis, a zoonotic disease, caused by leptospira interrogans (pathologic species) can present with mild asymptomatic anicteric illness to severe fatal Weil's syndrome (with profound jaundice, renal dysfunction, haemorrhagic diathesis). Rodents act as the main reservoir and transmission may follow direct contact with urine, blood or tissue from an infected animal or exposure to contaminated environment. Recreational water activities such as canoeing, wind surfing, swimming &amp; water skiing place persons at risk of leptospirosis (water is an important vehicle of transmission). Treatment is with drugs like penicillin G, amoxicillin, ampicillin, erythromycin, tetracycline, doxycycline. Chemoprophylaxis with doxycycline 200 mg once a week is indicated in sustained short term exposure.</p>
<p>No.: 40</p> <p>A 26-year-old woman is admitted to hospital for cadaveric renal transplantation. The operation is uneventful however she is admitted to the Intensive Therapy unit for 48 hours postoperatively. She is given treatment with prednisolone and cyclosporin, however 10 days after admission she develops a fever, diarrhoea, headaches and a non-productive cough. Examination reveals no focal signs of infection. Blood cultures are taken and a CXR is unremarkable. She is treated with cefotaxime, however after 48 hours the fevers continue and a repeat CXR shows left lower lobe consolidation .</p> <p>Options</p> <p>A. Streptococcus pneumoniae B. Klebsiella pneumoniae C. Pneumocystis carinii D. Cytomegalovirus E. Cryptococcus neoformans</p>	<p>No.: 40</p> <p><b>B</b></p> <p>Although Streptococcus pneumoniae should be considered as one of the most likely causes of postoperative pneumonia in an immunosuppressed patient, a response to Cefotaxime would be expected within 48 hours. This raises the possibility of atypical organisms, however this soon after a transplant P. carinii, CMV and C. neoformans are very unlikely. Although coliforms are frequently isolated from the sputum of hospitalised patients, particularly those who may have had many previous courses of antibiotics, they should be considered as a cause of invasive infections, particularly in individuals who had been nursed in renal and high dependency units, resistance to 3rd generation cephalosporins is common in the nosocomial setting.</p>



<p>No.: 41</p> <p>A 25-year-old woman presents to A&amp;E with a 1-day history of fever and painful swelling of the right knee. On examination a petechial rash is seen over her limbs and abdomen .</p> <p>The most important course of action (in order of implementation) is :</p> <p>Options</p> <p>A. Take blood cultures, aspirate the knee joint, give broad-spectrum antibiotics, rest and elevate the leg</p> <p>B. Take blood cultures, give antibiotics</p> <p>C. Take blood cultures, give broad-spectrum antibiotics, and perform a lumbar puncture</p> <p>D. Perform a high vaginal swab</p> <p>E. X-ray the knee and give some aspirin</p>	<p>No.: 41</p> <p>A</p> <p>In a young woman presenting with a painful monoarthritis, gonococcal infection has to be strongly considered. However, in the presence of a rash the most appropriate course of action would be to treat for Neisseria meningitidis by treating with a 3rd generation cephalosporin, after taking blood cultures. A lumbar puncture is not indicated in the absence of clinical symptoms or signs of meningism, and a high vaginal swab should be considered at a later date.</p>
<p>No.: 42</p> <p>A 22-year-old dancer is seen in the urgent medical clinic with a 1 week history of malaise, nausea, epigastric discomfort and low grade fever. 3 days previously she had developed pain in her left knee, small joints of her hands, and her mother had noticed her eyes to be yellow. She admitted to drinking moderate amounts of alcohol, but had never partaken in recreational drug use, had no history of blood transfusions nor tattooing procedures. Blood tests showed bilirubin 302 mmol/l, AST 156 u/l, gGT 150u/l, ALP 253 u/l and INR 1.4. Albumin 39 g/l. On further questioning her new boyfriend was a regular user of intravenous drugs, although had never had an illness associated with jaundice. Other household contacts included her 3-year-old daughter who was well .</p> <p>The investigation that will point towards the most likely diagnosis is :</p> <p>Options</p> <p>A. Liver ultrasound scan</p> <p>B. Anti-HBs</p> <p>C. Anti-HBc</p> <p>D. Anti-HBe</p> <p>E. Anti-HCV</p>	<p>No.: 42</p> <p>C</p> <p>Clearly the most likely diagnosis in this woman is of acute Hepatitis B infection, suggested by her exposure history and clinical history with prominent symptoms of immune complex disease. Although in the clinic the diagnosis would be confirmed by a positive Hepatitis B surface antigen, this option is not offered and it is important to consider the timing of antibody response during acute infection. Given that she is currently jaundiced, she is likely to be HBsAg positive, and therefore an HB surface antibody response will not yet have developed (usually develops after 5months). An HBe antibody response may develop during the jaundice and symptomatic stage (from 3 months after infection), but the earliest antibody seen is that of anti- HB core IgM, around 2 months after exposure. A liver ultrasound scan is an important investigation but will not lead to the diagnosis. Anti-HCV antibodies should be included in a screen for acute hepatitis but HCV is less likely to be symptomatic during acute infection and only 5% of HCV infections are heterosexually acquired, therefore exposure history is far more consistent with Hepatitis B.</p>






<p>No.: 43</p> <p>A 22-year-old dancer is seen in the urgent medical clinic with a 1 week history of malaise, nausea, epigastric discomfort and low grade fever. 3 days previously she had developed pain in her left knee, small joints of her hands, and her mother had noticed her eyes to be yellow. She admitted to drinking moderate amounts of alcohol, but had never partaken in recreational drug use, had no history of blood transfusions nor tattooing procedures. Blood tests showed bilirubin 302 mmol/l, AST 156 u/l, gGT 150u/l, ALP 253 u/l and INR 1.4. Albumin 39 g/l. On further questioning her new boyfriend was a regular user of intravenous drugs, although had never had an illness associated with jaundice. Other household contacts included her 3-year-old daughter who was well. The woman is diagnosed with Anti-HBc. Advice she should be given includes :</p> <p>Options</p> <p>A. Avoid all alcohol consumption for 6 months          B. Avoid sharing toothbrush with other family members          C. Toddler should be given specific hepatitis B immunoglobulin          D. No need for toddler to be screened for hepatitis B          E. Start the oral contraceptive pill to ensure she does not become pregnant</p>	<p>No.: 43</p> <p><b>B</b></p> <p>There is no harm in suggesting avoidance of alcohol after acute viral hepatitis, however there is no evidence that moderate alcohol intake during the 6 months after infection influences outcome. The toddler, and any other close household contacts, should certainly be given an accelerated vaccination course of recombinant hepatitis B vaccination, however specific Hepatitis B immunoglobulin is reserved for sexual contacts or those with direct blood exposure such as needle stick injury or sharing. Household contacts should be screened for Hepatitis B exposure (anti-HB core antibody) and if previously exposed do not need to complete the vaccination schedule. Pregnancy would be ill-advised while a HBsAg carrier, however the oral contraceptive pill should be avoided until transaminases have returned to normal. It is important to ensure household contacts do not share toothbrushes, razors or any other instruments that may involve direct blood contact.</p>
<p>No.: 44</p> <p>A 12-year-old girl is brought to the A&amp;E department with pain and redness in her arm following a friendly bite received from the family's Siamese cat 24 hours previously. Examination of the wound showed a serosanguinous discharge with erythematous streaking up her arm. Wound swab was taken and microscopy showed gram-negative coccobacilli with bipolar staining.</p> <p>Most appropriate therapy would include :</p> <p>Options</p> <p>A. Flucloxacillin          B. Cephalexin          C. Doxycycline          D. Erythromycin          E. Penicillin</p>	<p>No.: 44</p> <p><b>E</b></p> <p>The organism described is most likely to be Pasteurella multocida, but other species commonly infecting humans include P. canis, P. stomatis and P. dogmatis. Most human infections are acquired through cat &amp; dog bites, though cats carry a higher risk due to higher rates of colonisation and ability to inflict deeper wounds. Treatment of choice is with penicillin, 1st generation cephalosporins and erythromycin have poor activity against Pasteurella, and Doxycycline can be used in the penicillin allergic patient. As empirical treatment, amoxicillin-clavulanic acid should be considered to provide additional antistaphylococcal and anaerobic cover.</p>





<p>No.: 45</p> <p>A 40-year-old Jewish Orthodox rabbi living in New York City is brought to the A&amp;E department following a grand mal seizure. There was no previous history of trauma, epilepsy, recent illnesses or fever. He employed a Mexican cook who visited her relatives in Mexico once a year. Neurological examination was unremarkable and examination of the skin showed several 1x1cm firm, non-tender nodules on his upper limbs and trunk. CT scan showed the following appearance (multiple cystic areas, some with surrounding oedema and others calcification).</p> <p>The most appropriate initial diagnostic test would be :</p> <p>Options</p> <p>A. Biopsy of a skin lesion B. Examination of the stool for ova/ cysts and parasites C. HIV test D. Blood culture E. Brain biopsy</p>	<p>No.: 45</p> <p>A</p> 
<p>No.: 46</p> <p>A 24-year-old HIV positive man presents to A&amp;E on your take with a three week history of dry cough, shortness of breath on exertion, non-productive cough and weight loss. He is known to be HIV positive for 5 years but defaulted follow-up for the past 12 months during which time he has taken no antiretroviral therapy but has continued to take Cotrimoxazole 960mg once a day. Last CD4 count measured 12 months ago was 530 cells/ mm<sup>3</sup>. Chest X-ray showed left mid zone lobar consolidation and right upper lobe consolidation .</p> <p>Most likely diagnosis is :</p> <p>Options</p> <p>A. Pneumocystis carinii pneumonia B. Pulmonary thromboembolic disease C. Cytomegalovirus pneumonia D. Streptococcal pneumonia E. Pneumonia secondary to Mycobacteria other than TB (MOTT)</p>	<p>No.: 46</p> <p>D</p> <p>The commonest cause of pneumonia in HIV positive individuals is Streptococcus pneumoniae, and recurrent episodes of pyogenic pneumonia are a criteria for AIDS defining illness, or CDC category C infection. Pneumocystis carinii infection must be strongly considered, and empirical treatment commenced if there is any clinical suspicion. However cotrimoxazole prophylaxis is highly effective in truly compliant individuals, and typical X ray changes show bilateral mid zone interstitial shadowing (although apical consolidation may occur in patients who have received nebulised pentamidine prophylaxis). Pulmonary thromboembolic disease is common in HIV positive individuals but the chest X ray changes are not consistent with this. Although MOTT organisms may cause pneumonia in immunocompromised individuals this usually occurs at profoundly low CD4 counts (&lt;50 cells/mm<sup>3</sup>). CMV pneumonitis also occurs at profoundly low CD4 counts, but is relatively uncommon in HIV positive individuals, and if inclusion bodies are seen in bronchial washings this may not necessarily indicate invasive infection.</p>



<p>No.: 47</p> <p>A 70-year-old man presents with pain in his knee 3 months after a prosthetic joint replacement for osteoarthritis. He is otherwise well. An aspirate from the knee shows scanty growth of coagulase-negative Staphylococcus from an enrichment broth only, susceptible to fusidic acid, rifampicin, teicoplanin and vancomycin.</p> <p>The most appropriate course of action is :</p> <p>Options</p> <p>A. Check ESR and CRP, then commence broad spectrum antibiotics</p> <p>B. Advise orthopaedic surgeons to remove and replace the prosthesis</p> <p>C. Perform an echocardiogram and take multiple blood cultures</p> <p>D. Repeat the knee joint aspirate and start treatment with teicoplanin</p> <p>E. Perform a bone scan and withhold antibiotics</p>	<p>No.: 47</p> <p>E</p> <p>Prosthetic joint infections may commonly be caused by coagulase negative staphylococci, however before advising removal of a precious prosthesis there must be 1. firm evidence of osteomyelitis or joint involvement on imaging studies and 2. adequate preparation for obtaining appropriate microbiological samples. Treatment may need to continue for many months, so it is important to try to obtain deep operative specimens for microscopy, culture and sensitivity prior to starting any antibiotics. If the joint is infected it will not become sterile with antibiotic treatment alone, and ultimately may need to be removed. A joint aspirate could easily be contaminated with skin organisms, so treatment should not be commenced on these grounds unless it is not possible to operate and unless the same organism has been isolated on more than one occasion.</p>
<p>No.: 48</p> <p>A 33-year-old intravenous drug user presented to A&amp;E with an extremely painful erythematous forearm. He had a fever of 40C and blood pressure 85/50. He was mildly disoriented, and on examination of the arm there was crepitus. Investigations showed CK 10,500 mmol/l, urinalysis blood ++++ and creatinine 243 mmol/l.</p> <p>The most important initial steps in management are :</p> <p>Options</p> <p>A. Perform a renal ultrasound scan, X-ray the arm then start broad-spectrum antibiotics</p> <p>B. Rehydrate with sodium bicarbonate, perform a CT scan and start high dose IV benzylpenicillin</p> <p>C. Rehydrate with normal saline, start antibiotics and review in 24 hours</p> <p>D. Start IV benzylpenicillin and flucloxacillin and call the surgeons</p> <p>E. Start IV benzylpenicillin, metronidazole and clindamycin and call the surgeons</p>	<p>No.: 48</p> <p>E</p> <p>Painful cellulitis associated with signs of sepsis and subcutaneous/ crepitus are ominous hallmarks of necrotising fasciitis. The treatment of choice for this condition is surgical exploration and debridement, which must not be delayed. The empirical antibiotic regimen must cover Group A streptococcus and anaerobes. Clindamycin is frequently given due to an anti-toxin effect.</p>



No.: 49

An 8-year-old girl living in Alice Springs, Australia is brought to the local hospital where you are posted in the A&E department on a working holiday. She had a sudden onset of high fever, headache, nausea and vomiting over the previous 6 hours. Hobbies included racing camels and swimming. Her mother claims she was so well previously that she was dive-bombing into a local waterhole only 2 days before. She was pyrexial to 39.8C, extremely drowsy with nuchal rigidity and there were no focal neurological findings or a rash. A lumbar puncture was performed and CSF showed the following :

WCC 2300/ml with 65% neutrophils, 35% lymphocytes  
Glucose 2.3 g/l (plasma 6.0) and CSF protein 1.12 g/l  
Gram stain Negative

What would be the next step in your management plan?

Options

- A. Start ceftriaxone, amoxycillin and acyclovir and arrange for retrieval to Darwin Hospital
- B. Perform an India Ink stain on CSF and start ampicillin
- C. Perform an India Ink stain on CSF and start amphotericin and ceftriaxone
- D. Start ceftriaxone and antituberculous therapy and arrange for the family contacts to be given prophylaxis
- E. Start ceftriaxone, amoxycillin, acyclovir and amphotericin, and arrange for the camel to be swabbed

No.: 49

C

Amoebic meningoencephalitis is a rare infection caused by *Naegleria fowleri*, an organism found around the world in soil and bodies of fresh water, but particularly in extremely hot environments. A history of diving into water is frequent, and CNS invasion is thought to occur due to the organism crossing the cribriform plate. Mortality rate is 95%, although there have been some successes with amphotericin treatment. The organism is not routinely seen on gram stain, and only rarely seen on wet mount. In an individual presenting with signs of meningism and encephalitis, it is important to cover for more common organisms such as HSV encephalitis and meningococcal meningitis, however in a child so unwell retrieval to another hospital would be potentially hazardous.





<p>No.: 50</p> <p>This man has recently returned from a beach holiday in Barbados 1 week ago, where he had a lovely time but has now developed an itchy foot with a rash. He believes this rash, which has a serpiginous appearance, looked slightly different yesterday .</p> <p>The causative organism is :</p> <p>Options</p> <p>A. <i>Ancylostoma braziliense</i>          B. <i>Ancylostoma duodenale</i>          C. <i>Strongyloides stercoralis</i>          D. <i>Necator americanus</i>          E. <i>Dracunculus medinensis</i></p>	<p>No.: 50</p> <p>A</p> <p>Cutaneous larva migrans (Creeping eruption) is caused by the dog hookworm, common in tropical and subtropical climates. When an individual comes into contact with soil contaminated with infected dog faeces, filariform larvae can develop no further in humans, and die after wandering in the subcutaneous tissue for many weeks. It has a similar appearance to the larva currens rash of <i>Strongyloides stercoralis</i>, which advances very quickly; however, by contrast cutaneous larva migrans progresses only a few millimetres per day. Treatment is with 10% thiabendazole applied topically or a course of oral Albendazole. <i>Ancylostoma duodenale</i> and <i>Necator americanus</i> cause human intestinal hookworm infection, and <i>Dracunculus medinensis</i> is caused by the female guinea worm which takes a year to mature, presenting with a papule and blister formation associated with local pain.</p>
<p>No.: 51</p> <p>A 40-year-old entomologist was bitten by <i>Aedes aegypti</i> while taking a holiday in Thailand from where he returned 1 week ago. He presented to hospital with fever, severe back pain, arthralgias and an erythematous rash, which started on the trunk and spread to his limbs and face .</p> <p>The most likely diagnosis is :</p> <p>Options</p> <p>A. Lymphocytic choriomeningitis          B. Yellow fever          C. Malaria          D. St. Louis encephalitis          E. Dengue fever</p>	<p>No.: 51</p> <p>E L S</p> <p>The symptoms described are classical presentation for Dengue virus infection, which has an incubation period of 5-8 days .</p> <p>Yellow fever is also transmitted by the bite of <i>Aedes aegypti</i>, but is most common in South America and parts of sub-Saharan Africa .</p> <p>Malaria is transmitted by the female <i>Anopheles</i> mosquito and not associated with rash .</p> <p>St. Louis encephalitis can mimic HSV encephalitis, is found in Central and Southern United States and is transmitted by <i>Culex</i> mosquitos .</p> <p>Lymphocytic choriomeningitis occurs in Europe and North America and is transmitted to humans via mice and hamsters.</p>





<p>No.: 52</p> <p>A 27-year-old nursery nurse is admitted to the hospital with headache, lethargy, dyspnoea and low grade fever. Four days previously she developed a pruritic rash on her trunk, spreading to her face and limbs. She is a non-smoker with no previous medical history. To her surprise, urine was positive for b-HCG, and her last normal menstrual period was 6 weeks ago. The rash now looks vesicular with crops in different stages of development .</p> <p>Treatment should include :</p> <p>Options</p> <p>A. Reassurance and advice to avoid contact with other pregnant women</p> <p>B. Oral acyclovir and discharge home with early outpatient follow-up</p> <p>C. Admission for intravenous antibiotics and IV acyclovir</p> <p>D. IV acyclovir and varicella zoster immunoglobulin (VZIg)</p> <p>E. Admission to the obstetrics ward for serial foetal ultrasonography</p>	<p>No.: 52</p> <p>C</p> <p>Chickenpox is more severe in adults than children, and complications of pneumonitis are more common in pregnancy and in smokers. Intravenous acyclovir is indicated in immunocompromised individuals, and immunocompetent individuals with evidence of pulmonary involvement or other complications. As she has already developed infection, there is no role for immunoglobulin, and although acyclovir is not licensed in pregnancy it should be offered to pregnant women with complications after appropriate counselling. Pregnant women with pneumonia should never be admitted to the obstetrics ward due to the risk of exposing others to the infection. Risk of congenital varicella syndrome is 1% of deliveries, in mothers who had chickenpox during the first 20 weeks of pregnancy.</p>
<p>No.: 53</p> <p>A 23-year-old medical student returned from rural Sierra Leone 2 weeks ago, and has now developed fevers and rigors. He worked in a health clinic where a number of individuals recently died from an unknown illness .</p> <p>The most important course of action is :</p> <p>Options</p> <p>A. Notify the Dean of the medical school to suggest that he have a few weeks at home to recover</p> <p>B. Send a thick and thin malaria film, full blood count, and urea and electrolytes to the laboratory immediately</p> <p>C. Place in protective isolation, restrict staff contact, withhold all blood tests and notify the nearest Infectious Diseases unit with High Security facilities</p> <p>D. Take appropriate blood samples and treat empirically with IV quinine and broad spectrum antibiotics</p> <p>E. Await results of a malaria film and if negative, request IgM for viral haemorrhagic fever</p>	<p>No.: 53</p> <p>C</p> <p>Lassa fever is endemic in parts of West Africa including Guinea, Sierra Leone, Liberia and parts of Nigeria. In any individual returning from a high-risk area for viral haemorrhagic fever with onset of symptoms occurring within 21 days of potential exposure, an immediate risk assessment must be carried out and advice sought immediately from a specialist unit. If an individual is considered at high risk, handling of routine blood samples in a routine diagnostic laboratory must be avoided until the diagnosis has been excluded. Diagnosis can be made initially by serum PCR, however IgM antibody does not develop until 1-2 weeks after infection.</p>



<p>No.: 54</p> <p>A 25-year-old photojournalist returned from assignment in Kenya 4 weeks ago and has been unwell for 2 weeks with fever, headache, sore throat and a rash. He took chloroquine and proguanil malaria prophylaxis and received a full complement of vaccinations from the travel clinic before departure. He had unprotected sexual contact with a casual female partner the night before his departure .</p> <p>He has a temperature of 38.5 °C, a generalised non-itchy rash, generalised lymphadenopathy, his tonsillar fauces are inflamed with no exudates and multiple, painless, shallow mouth ulcers are present. He has moderate hepatosplenomegaly .</p> <p>Blood tests show :  Malaria film negative  ESR 78mm/hr  Blood cultures negative  AST 64 iu/l  VDRL positive  FT-ABS negative  Antibodies to HIV 1 &amp; 2 negative</p> <p>Which of the following statements are true?</p> <p>Options</p> <p>A. A repeat malaria film is entirely unnecessary  B. Primary syphilis is the most likely diagnosis  C. Primary syphilis should be excluded by performing dark ground microscopy on mouth ulcers  D. HIV seroconversion illness can be excluded by HIV p24 antigen test  E. HIV antibodies should be repeated in 2 months time</p>	<p>No.: 54</p> <p><b>E</b></p> <p>This patient was found to have HIV-seroconversion illness, however treponemal infections and cosmopolitan viral illnesses such as EBV, CMV and Parvovirus B19 should also be considered. VDRL can be falsely positive in HIV .</p> <p>Primary syphilis is diagnosed by dark ground microscopy of a characteristic primary genital chancre, and although the oral mucous patches of secondary syphilis are teeming with spirochaetes, it cannot be easily diagnosed by dark ground microscopy taken from the mouth due to the presence of non-treponemal spirochaetes in the normal oral flora .</p> <p>Malaria does not cause a rash, but should always be excluded with at least 3 negative films in individuals with a fever, returning from an endemic area .</p> <p>HIV antibodies may not develop until 3 months after exposure; however, the diagnosis of seroconversion can be supported by quantitative HIV RNA PCR from plasma .</p>
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No.: 55

A 30-year-old woman complains of high fever, myalgia development of a diffuse erythematous rash since she has been having her menstrual periods 4 days ago. She also complains of watery diarrhea for last 2 days. She admits using vaginal tampons. The following would be the useful aspects of the management of this condition except :

Options

- A. Rehydration
- B. Removal of tampons
- C. IV immunoglobulin
- D. Antibiotics
- E. Immediate blood cultures before administering antibiotics

No.: 55

**E** Toxic shock syndrome is caused by toxin producing strains of *Staphylococcus aureus*. It is characterized by diarrhea, vomiting, sore throat and headache .

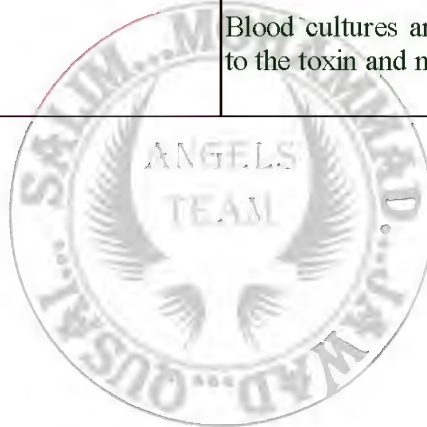
Most of the cases are reported in women of childbearing age and during the menstrual periods .

Vaginal tampons are notoriously associated with toxic shock syndrome. But now non-menstrual causes of this condition are as common as menstrual causes .

Rehydration, antibiotics, removal of tampons, drainage of any abscess are all aspects of management .

I V Immunoglobulin is also used, as it is effective in ameliorating the toxicity .

Blood cultures are not indicated as this condition is due to the toxin and not due to the invasion of the organisms.







<p>No.: 56</p> <p>Which of the following are true with regards to Infective endocarditis:</p> <p>Options Choose 3</p> <p>A. It can be diagnosed by Duckett Jones criteria including 2 or more major criteria and 2 or more minor plus 1 major criteria .</p> <p>B. Raised ESR is a minor criteria .</p> <p>C. Treatment of choice for enterococcal endocarditis is with a 3rd generation cephalosporin .</p> <p>D. When caused by viridans type streptococci (VTS), 2 weeks of treatment are insufficient in a patient with prosthetic valve endocarditis .</p> <p>E. Patients with fungal endocarditis should be referred for early surgery .</p> <p>F. Enterococcus is a member of the HACEK group of organisms .</p> <p>G. Diagnostic criteria include persistently positive blood cultures for any microorganism (blood cultures drawn more than 12 hours apart) .</p> <p>H. Change or increase in pre-existing murmur is a major criteria for diagnosis .</p> <p>I. Recurrent positive blood cultures meet major criteria only if a typical organism for infective endocarditis is found .</p> <p>J. Gram negative organisms never cause endocarditis.</p>	<p>No.: 56</p> <p>D E G</p> <p>D) When caused by viridans type streptococci (VTS), 2 weeks of treatment are insufficient in a patient with prosthetic valve endocarditis .</p> <p>E) Patients with fungal endocarditis should be referred for early surgery .</p> <p>G) Diagnostic criteria include persistently positive blood cultures for any microorganism (blood cultures drawn more than 12 hours apart)</p> <p>Duckett Jones criteria pertain to diagnosis of rheumatic fever, not infective endocarditis .</p> <p>Enterococci are intrinsically resistant to 3rd generation cephalosporins and require treatment with high dose amoxicillin / ampicillin with or without an aminoglycoside, depending on MIC to gentamicin .</p> <p>HACEK organisms are a cause of culture negative endocarditis, and include: - Haemophilus</p> <ul style="list-style-type: none"> <li>-Actinobacillus</li> <li>-Cardiobacterium</li> <li>-Eikenella</li> <li>-Kingella</li> </ul> <p>Change or increase in pre-existing murmur is not sufficient as major criteria for diagnosis- evidence of new valvular regurgitation is required.</p>
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No.: 57

A 28-year-old man presented with increasing shortness of breath on exertion. He had been unwell for at least two weeks with intermittent fevers chills. Over two days preceding his admission to hospital he had developed breathlessness on minimal exertion and a cough productive of blood-stained sputum .

He had several previous hospital admissions including one for inadvertent opiate overdose. He was unemployed and had been homeless until three months previously. He currently lived in a bedsit with his girlfriend, 6-month-old baby and their dog. He admitted regular use of recreational drugs and occasionally injected intravenously .

On examination he was febrile at 38.5 °C. His jugular venous pressure was 9 cm above sternal angle when lying supine at 45°. His blood pressure was 90/60 mmHg and pulse rate 130 beats per minute (bpm) and irregularly irregular. A soft pansystolic murmur was audible at lower left sternal edge. He was mildly tender in the right upper quadrant on abdominal palpation .

The chest radiograph showed multiple opacities throughout in both the lung fields .

Which of following anti-microbial regimens is most likely to be effective in treating this patient?

Options Choose 1

- A. IV amphotericin
- B. IV benzylpenicillin and gentamicin
- C. IV benzylpenicillin and metronidazole
- D. IV gentamicin and vancomycin
- E. Rifampicin, isoniazid, ethambutol and pyrazinamide

No.: 57

D

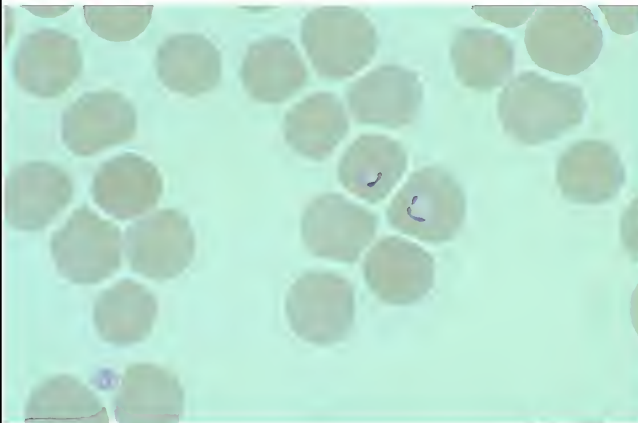
This man is likely to have infective endocarditis (IE) of his tricuspid valve complicated by severe tricuspid regurgitation, AF and multiple septic pulmonary emboli. The likely causative agent is a staphylococcus. In any case the best blind treatment of IE is gentamicin and vancomycin.



No.: 58

A 35-year-old woman presented to accident & emergency with a high fever ten days after returning from holiday in Kenya. Before leaving the U.K. her GP had prescribed mefloquine. She had started mefloquine 1 week before travelling had continued to take it while she was in Africa. She complained of regular spiking fevers and rigors along with lethargy and general malaise. Physical examination was unremarkable apart from a temperature of 40°C. A peripheral blood film is shown below.

What is the diagnosis?



Options Choose 1

- A. African trypanosomiasis
- B. Dengue fever
- C. Loa loa
- D. Onchocerciasis
- E. Plasmodium falciparum malaria

No.: 58

E

The film shows the typical ring-forms of the plasmodium falciparum parasitising erythrocytes. Taking anti-malarial prophylaxis does not guarantee protection from infection.



No.: 59

A 20-year-old male student attends casualty complaining of urethral discharge one week after having casual unprotected sex. He is otherwise well with no other past history of sexually acquired infections .

Gram stain shows numerous neutrophils, some of which contain gram-negative intracellular diplococci. The patient is treated with Ceftriaxone, 250 mg as an intramuscular injection. Seven days later, the patient re-attends with persisting discharge .

Which of the following is the most likely cause of this discharge?

Options Choose 1

- A. Chlamydia trachomatis
- B. Penicillin-resistant Neisseria gonorrhoeae
- C. Re-infection with Neisseria gonorrhoeae
- D. Ureaplasma urealyticum
- E. Urethral stricture

No.: 59

A

Co-infection with chlamydia is very common. Penicillin/cephalosporin resistance is rare in N. gonorrhoea.





No.: 60

A 22-year-old medical student presented to hospital 2 weeks after returning from a 3-month elective period in Africa. He gave a several day history of a non-productive cough and intermittent fever. His GP had commenced a 1-week course of amoxicillin .

He had spent his elective in Kenya, but had also spent time in travelling Malawi and South Africa. He developed a febrile illness with diarrhoea 2 weeks before returning to UK and was seen by a doctor in South Africa and prescribed a course of metronidazole for presumed amoebiasis and his symptoms settled within 3 days. There was no other past history of note .

On examination he was febrile (38.5°C) and an urticarial rash was visible over the trunk. There was no palpable lymphadenopathy. His pulse was 90 beats per minute in sinus rhythm and blood pressure 120/70 mm Hg. His chest was clear. His abdomen was soft and slightly tender in the left hypochondrium. His spleen was not convincingly palpable but the splenic bed was dull to percussion .

Investigations showed :

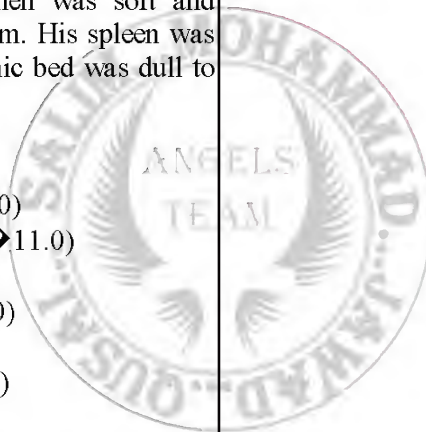
Haemoglobin 14.3 g/dl (NR 13.0-18.0)  
 White cell count  $9.7 \times 10^9/L$  (NR  $4.0-11.0$ )  
 Neutrophils  $5.6 \times 10^9/l$  (NR  $1.5-7.0$ )  
 Lymphocytes  $1.5 \times 10^9/l$  (NR  $1.5-4.0$ )  
 Monocytes  $0.1 \times 10^9/l$  (NR  $<0.8$ )  
 Eosinophils  $1.5 \times 10^9/l$  (NR  $0.04-0.4$ )  
 Basophils  $0.1 \times 10^9/l$  (NR  $<0.1$ )  
 Platelets  $320 \times 10^9/l$  (NR  $150-400$ )  
 Chest X-ray Normal  
 Amoebic serology Negative

What is the most likely diagnosis?

Options

- A. Amoebiasis
- B. Human immunodeficiency virus (HIV) seroconversion illness
- C. Schistosomiasis
- D. Trypanosomiasis
- E. Typhoid fever

No.: 60







No.: 61

A 23-year-old Rwandan refugee presented to a genitourinary clinic with a vaginal ulcer. The ulcer was extensive, measuring 8 x 5 cm, and was about 5mm deep, located to the left of the introitus, involving both the labia minora and majora, and was relatively painless. The patient gave the following social history. Two years earlier, in the Rwandan conflict, her husband was murdered. One of her children died and the other disappeared. She was abducted by the armed forces and subjected to repeated rape by many soldiers before being released. Ulcer swabs for bacterial and viral culture, serologies and two ulcer biopsies all failed to give a diagnosis. She tested HIV negative and syphilis negative. The ulcer failed to improve with outpatient aciclovir, famciclovir, penicillin or azithromycin or erythromycin, and although it improved briefly during an admission for empirical intravenous aciclovir, it relapsed again after discharge. The problem persisted for two years. The most likely diagnosis is :


Options Choose 1

- A. Cutaneous tuberculosis
- B. Chancroid
- C. Recurrent aciclovir-resistant Herpes Simplex
- D. Lymphogranuloma venereum
- E. None of the above

No.: 61

The case is a useful reminder of the infectious causes of genital ulcer. These do include TB, although the biopsy should have been helpful. Chancroid is caused by *Haemophilus ducreyi* and is one of the exotic tropical causes of genital ulcers, although it does occur worldwide. Chancroid ulcers tend to be painful and ragged and (in women) multiple, and tender inguinal lymphadenopathy occurs in 50% of cases. The organism may be seen on a smear or cultured from the lesion or the lymph node. Treatment is with azithromycin or erythromycin. Syphilis may look similar, and often coexists, but is painless. Diagnosis of syphilis is by dark ground microscopy and serology, and treatment is with penicillin. The other exotic STD is Lymphogranuloma venereum (LGV) caused by certain serovars of *Chlamydia trachomatis*. Ulcers are usually too small to be noticed, however, and the main sign is tender lymphadenopathy, which may be dramatic. Diagnosis is usually by serology and treatment is with doxycycline or erythromycin. This lady was a real patient and the diagnosis here was dermatitis artefacta. Once she admitted this, the ulcer healed completely in a few weeks. The clues, of course, are in the dreadful social history, and in the brief improvement while under supervision in hospital. This case also reminds us that when problems persist, and fail to yield to ever more exotic searches for infections, they are usually not infectious in origin at all.

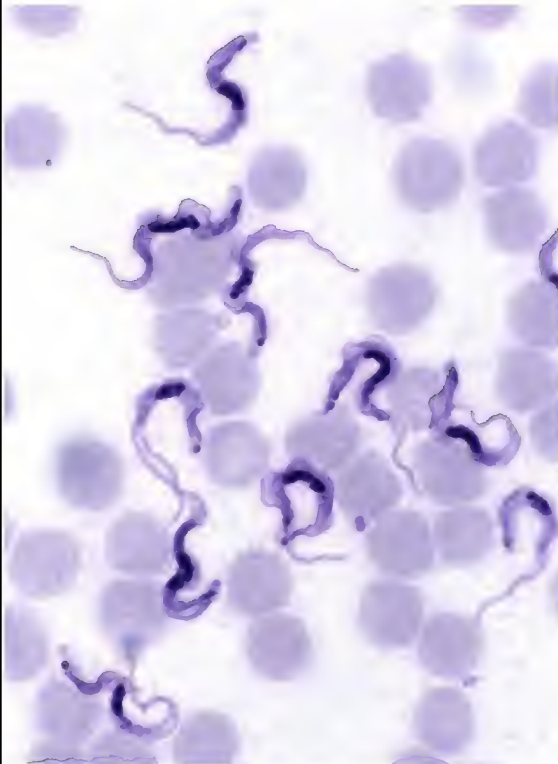


<p>No.: 62</p> <p>A 38-year-old previously well city stockbroker presents with a 3 day history of fever, dry cough and retrosternal discomfort. He has felt much worse today. On examination he looks very ill, with a temperature of 40°C, pulse 120 regular, respiratory rate 36/min, dry cough and some stridor, with crackles throughout both lung fields. PO<sub>2</sub> is 7.1 on air, with a normal pCO<sub>2</sub>. Chest X-Ray shows bilateral pleural effusions and some widening of the mediastinum. A diagnostic pleural tap yields bloodstained fluid which contains a few gram positive bacilli. Which of the following would be the most appropriate ?</p> <p>Options Choose 1</p> <p>A. ITU, respiratory isolation, iv Benzyl Penicillin 2.4 g qds          B. ITU, iv ciprofloxacin 400 mg bd          C. ITU, respiratory isolation, iv ciprofloxacin 400 mg bd          D. HDU, respiratory isolation, iv Benzyl Penicillin 2.4 g qds          E. HDU, respiratory isolation, iv Doxycycline 100mg bd</p>	<p>No.: 62</p> <p>B</p> 
<p>No.: 63</p> <p>Nick, a 63--year-old Greek restaurant owner from North London, presents with a six-month history of backache, fatigue and night sweats. On examination he is pale, with mild splenomegaly and tenderness over L4/5. The ESR is 58. A CT guided biopsy of L4 reveals granulomas. No organisms are seen on either Gram or Ziehl Neelson stains. You arrange a heaf test, which is read as grade 2. The ESR is now 75. What is your choice of blind antimicrobial therapy :</p> <p>Options</p> <p>A. Rifampicin, isoniazid, pyrazinamide and doxycycline          B. Rifampicin, isoniazid, pyrazinamide and ethambutol          C. Vancomycin and rifampicin          D. Ciprofloxacin and clindamycin          E. Ceftriaxone</p>	<p>No.: 63</p> <p>A</p> <p>The presentation is clearly that of vertebral osteomyelitis. Tuberculosis or brucella could cause a raised-ESR, and granulomas on biopsy. The diagnosis of brucella is supported by the patient's ethnic origin (Greek) and the absence of AFB's on ZN staining, the diagnosis of TB is supported by the +ve Heaf test. The treatment of vertebral brucella is doxycycline and rifampicin. Because TB cannot be excluded until culture results are available the best blind therapy should cover TB and brucella i.e. rifampicin, isoniazid, pyrazinamide and doxycycline.</p>

No.: 64

A 22-year-old medical student presents with a one week history of fevers and malaise. He has chronic asthma since childhood which is controlled by twice daily inhaled corticosteroid. He returned from his elective period in Gambia two months previously. On examination, he has enlarged lymph nodes palpable in both supraclavicular fossae and in the submandibular region. The nodes are smooth, mobile and non-tender. His blood film is shown .

What is the diagnosis:



Options Choose 1

- A. Dracunculiasis
- B. Loa loa infection
- C. Onchocerciasis
- D. Schistosomiasis
- E. West African trypanosomiasis

No.: 64

E

The blood film shows the typical trypanosomes of West African trypanosomiasis (sleeping sickness) .

The clinical description is typical for the early stage of the condition with fever and lymphadenopathy. There is also often a painless chancre at the site of the bite from the tsetse fly. Only in later stages does CNS involvement occur with altered conscious state and coma .

Dracunculiasis (Guinea worm) is a cutaneous worm infection not associated with blood film abnormalities .

Onchocerciasis and loa loa are both filarial diseases with the worms appearing orders of magnitude larger than blood cells on blood films. Again they typically cause cutaneous or ocular symptoms and signs .

Schistosomiasis is not detected on blood films, it is usually diagnosed by demonstrating eggs in urine or stool analysis.





No.: 65

A 29-year-old woman attends the emergency department and complains of two days of fevers. She has complained of flu-like symptoms for the last week. In the 12 hours prior to admission, her husband reports that she has become drowsy. The patient and her partner had returned from a 4 week fly-drive tour of the eastern states of the USA 2 weeks ago. On examination, the heart rate is 64 and regular, and her blood pressure is 145/75. Cardiovascular and respiratory examination is entirely normal. GCS is 13. Power, tone sensation and reflexes are normal in the upper and lower limbs. There are no skin rashes .

Investigations show :

Haemoglobin 13.8g/dl

White cell count  $6.9 \times 10^9/l$

Platelets  $300 \times 10^9/l$

Serum sodium 141mmol/l

Serum potassium 4.0mmol/l

Serum urea 3.5mmol/l

Serum creatinine 83umol/l

Serum glucose 5.9mmol/l

Serum calcium 2.4mmol/l(NR 2.2-2.6)

Liver function tests Normal

CSF examination reveals :

Glucose 3.8mmol/l

Red cells 9

White cells 1

CSF protein 0.6g/l

Oligoclonal bands: Absent

A T2-weighted MRI of the brain is reported as showing high signal intensity and swelling in the thalamus bilaterally. On returning to the ward from the MRI scanner the patient has a generalised tonic-clonic seizure .

What is the most likely diagnosis:

Options Choose 1

A. Guillain-Barre syndrome

B. Lyme disease

C. Lyme disease

D. Cysticercosis

E. West nile virus infection

No.: 65

E

West nile virus encephalitis is an increasing problem in the US and is now found nationally. There is no specific treatment and therapy is supportive although the vast majority of patients make a complete (if slow) recovery . The key differential is HSV encephalitis which can often be diagnosed on MR .

There are no typical radiological findings in WNV.







<p>No.: 66</p> <p>A 42-year-old Nigerian man returned from a 3 week business trip to Lagos 6 days ago. He did not travel to any rural areas of Nigeria. He took empirical oral artesunate He is admitted with a history of fever for eight days, diarrhoea for 2 days and headache and confusion for 1 day. His fevers did not improve with self-treatment for malaria with oral artesunate in Nigeria. On admission he has a GCS of 6/15, a temperature of 38.5oC, a BP of 130/70, a clear chest, no palpable liver or spleen and anuria. Which of the following treatments is most likely to be appropriate :</p> <p>Options</p> <p>A. Iv quinine, ITU, hydrocortisone, aggressive fluid resuscitation</p> <p>B. Iv quinine, ITU, mechanical ventilation and haemofiltration</p> <p>C. Iv chloroquine, ITU, 50ml 50% glucose and mechanical ventilation</p> <p>D. Iv ciprofloxacin, ITU, mechanical ventilation, aggressive fluid resuscitation</p> <p>E. Iv ceftriaxone, ITU, mechanical ventilation and haemofiltration</p>	<p>No.: 66</p> <p><b>B</b></p> <p>This is a classic story for severe Plasmodium falciparum malaria. It is easy to contract malaria in urban environments. This is cerebral malaria (defined as unrouseable coma with P. falciparum parasitaemia and no other identifiable cause for unconsciousness). With a GCS of 6 he needs intubating to protect the airway. Steroids are deleterious in cerebral malaria. Chloroquine resistance is prevalent in almost all malaria-endemic areas, and quinine resistance is hardly ever a clinical problem. Artesunate is a good treatment for P. falciparum (ideally in combination with other antimalarials) but a lot of drugs in Nigeria are fake. Anuria in severe malaria is common and usually needs haemofiltration. Severe malaria is an emergency and often mismanaged with potentially fatal consequences. Always seek specialist advice.</p>
<p>No.: 67</p> <p>A 78-year-old lady with Type II diabetes has surgery for a broken hip following a fall. 2 days after the operation the skin around the wound becomes red, hot and tender. She is commenced on iv benzyl penicillin and flucloxacillin. 2 days later the redness has spread up to the abdominal wall and the skin round the wound is anaesthetic and dusky with bullae. She looks toxic and very ill. What are the most appropriate immediate steps :</p> <p>Options</p> <p>A. Change to iv clindamycin and support on a high dependency unit</p> <p>B. CT scan of pelvis and abdomen, and skin biopsy</p> <p>C. CT scan, urgent surgical debridement and hyperbaric oxygen</p> <p>D. CT scan and change to ampicillin, gentamicin and metronidazole</p> <p>E. Urgent surgical debridement and ampicillin, gentamicin and metronidazole</p>	<p>No.: 67</p> <p><b>E</b></p> <p>This is necrotizing fasciitis and it is an emergency. The mortality ranges from 20% to 50%. The process can progress very quickly in diabetics. The anaesthesia and bullae (not always present) reflect the underlying necrosis and show that this is not ordinary cellulitis. A CT scan may certainly help the diagnosis by demonstrating fascial oedema and gas in the tissues, but here the diagnosis is clinically clear, and CT will delay the urgent remedy which is surgical exploration and radical debridement. Anaerobes, Enterobacteriaceae and streptococci may all be involved and amp/gent/metro is reasonable. Hyperbaric oxygen has been advocated but is not of proven efficacy, and may be incompatible with intensive support.</p>



No.: 68

A 56-year-old homosexual Spanish man recently diagnosed with HIV has a CD4 count of  $85 \times 10^6/L$  and has just started prophylactic septrin and antiretroviral therapy. He has a fit. CT and MRI demonstrate an extensive irregular lesion in and adjacent to the left thalamus with quite a lot of surrounding oedema, and patchy enhancement. He wakes up and looks well. What is the most appropriate management :

Options

- A. Intravenous sulphadiazine and pyrimethamine for two weeks then re-scan
- B. Lumbar puncture, then as in A
- C. Sodium valproate, dexamethasone and early brain biopsy
- D. Intravenous ceftriaxone and metronidazole for two weeks then re-scan
- E. Palliative whole brain radiotherapy

No.: 68

Probably! This is not an easy problem but it is a common one in HIV medicine. The lesion is probably a primary CNS lymphoma (PCNSL) because it is single and irregular and does not show ring enhancement, and because his conscious level is normal. These features are pointers away from cerebral toxoplasmosis, the other very common cause of brain lesions in advanced HIV (although oedema is commoner with toxoplasmosis than with PCNSL). However, reliance on such pointers may lead to the wrong diagnosis in 30-40% of patients. CSF is diagnostically very useful because a positive PCR for Epstein Barr Virus is very tightly associated with PCNSL, being almost diagnostic, but it is not clear that LP is safe in this patient. Brain biopsy is the diagnostic gold standard but is obviously risky. PCNSL carries a terrible prognosis (median survival around 6 weeks from diagnosis) however it is treated. Cerebral toxoplasmosis is, by contrast, usually cured. It is generally considered sensible therefore to treat for the treatable condition, even if it does not seem the most likely diagnosis. First line treatment for cerebral toxoplasmosis is with sulphadiazine & pyrimethamine. Palliative radiotherapy is appropriate for PCNSL. Ceftriaxone and metronidazole is appropriate for a bacterial brain abscess, but this is much less common in this context. Other possibilities in advanced HIV would be tuberculoma, cryptococcoma, Nocardia and listeria, and neoplastic metastases. This was a real patient. We opted for B, (and CSF EBV PCR was positive) but the lesion grew so we went on to a biopsy. This showed PCNSL. We started palliative radiotherapy but this man died 6 weeks after the diagnosis of a brain lesion.



<p>No.: 69</p> <p>A 33-year-old man with a known AIDS infection was admitted with a 2 month history of weight loss (12 kilograms), diarrhoea 6 times a day (no blood) and right upper quadrant abdominal pain .</p> <p>He has had two episodes of <i>Pneumocystis carinii</i> pneumonia, one requiring admission to ITU and mechanical ventilation 8 months ago. He takes HAART and codeine phosphate .</p> <p>He and his partner have been together for 3 years. He does not smoke or drink .</p> <p>On observation he is thin and looks unwell .</p> <p>On examination his cardiovascular examination is normal. He has some sparse crackles at both lung bases .</p> <p>On examination of his abdomen, he has some tenderness in the right hypochondrium. Murphy's sign is negative .</p> <p>Neurological examination is negative .</p> <p>On ophthalmic examination there are early haemorrhagic regions in the left fundus .</p> <p>Investigations :</p> <p>FBC :</p> <p>Hb 10.4</p> <p>WCC 6.7</p> <p>platelets 80</p> <p>MCV 102</p> <p>CD4 40</p> <p>U&amp;E: Normal</p> <p>LFT :</p> <p>Alk Phos 290</p> <p>Bilirubin 65</p> <p>ALT 20</p> <p>cGT 32</p> <p>CXR: linear streaky basal shadows .</p> <p>What therapy would you consider? :</p> <p>Options</p> <p>A. Intravenous gancyclovir</p> <p>B. Foscarnet</p> <p>C. High dose septrin</p> <p>D. Lamivudine</p> <p>E. Anti-mycobacterial therapy</p>	<p>No.: 69</p> <p>A</p> <p>This man has CMV until proven otherwise. The fundi are the most important problem - remember the mash potatoes and cream appearance .</p> <p>IV therapy is still first line (at least 10 days) .</p> <p>The liver function does suggest a cholestatic pattern, and sclerosing cholangitis is well recognised. Crypto- and microsporidia are very common causes of diarrhoea in AIDS and must be looked for .</p> <p>His chest signs stem from two recent pneumonic illnesses .</p> <p>CD 4 count Illness</p> <p>400Normal</p> <p>200First episodes of PCP</p> <p>100Other viral syndromes -</p> <p>Kaposi (Human Herpes Virus 8)</p> <p>leucoencephalopathy (JC virus) / CMV</p> <p>50HIV encephalopathy</p> <p>atypical mycobacteria</p>
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No.: 70

The captain of St Thomas's rugby team is referred to clinic with vague abdominal pains and an ultrasound scan reporting a 10cm cystic lesion in the left lobe of the liver. His only previous illness was an episode of diarrhoea during a summer job in Australia.

Neutrophils

6.2 x 10<sup>9</sup>/l

Hb 146 g/l

Lymphocytes 2.1 x 10<sup>9</sup>/lPlts 420 x 10<sup>9</sup>/lEosinophils 1.3 x 10<sup>9</sup>/lMonocytes 0.6 x 10<sup>9</sup>/l

ALP 388 iu/l

Basophils 0.0 x 10<sup>9</sup>/l

□ FP 9 ku/l

Which treatment would you recommend :

Options

A. Four weeks of Ciprofloxacin alone

B. Four weeks of Ciprofloxacin then percutaneous drainage

C. Two weeks of Metronidazole alone

D. Surgical exploration

E. Repeat scanning in one month

No.: 70

D

Possible causes of the cystic lesion include pyogenic hepatic abscess, Amoebic abscess and Echinococcal cyst. All of these can present with vague abdominal symptoms and RUQ pain but fever and leucocytosis is expected with a pyogenic abscess. Amoebic abscess is unlikely as there is no history of travel to an endemic area (Central America, Africa, SE Asia). Echinococcus is however endemic in Australia. The average size of hydatid cysts at presentation is 11cm, about 2/3rd will have raised ALP and 1/3rd eosinophilia. The presence of calcification and septation on imaging studies is virtually pathognomic. Cysts should be excised if surgically possible although there is a risk of rupture and spillage of cyst material leading to anaphylaxis. Hydatid cysts should never be percutaneously drained for this reason. If not removable surgically another option is instillation of cetrime. Hepatic abscesses should be treated with 4 weeks of parenteral therapy plus percutaneous drainage. Metronidazole is the treatment of choice for amoebic liver abscess.





No.: 1

A 50-year-old with known rheumatoid arthritis presents to clinic, with a 2-month history of increasing breathlessness on exertion. She had received gold injections for many years, but had found she still had to take regular diclofenac for joint swelling. She was on no other therapy .

Hb 8.0  
MCV 90  
WCC 2.5  
pl 100  
IgG 23  
Ferritin raised  
Fe N  
Serum EP No paraprotein  
ESR 65  
Rheumatoid factor 1/1240  
ANA 1/640

The most likely explanation for her blood count abnormalities would be:

Options

- A. Gold therapy
- B. Lymphoma
- C. ITP
- D. Haemolytic anaemia
- E. Bleeding secondary to NSAIDS

No.: 1

B

Her shortness of breath is likely to be due to the anaemia .

Felty's syndrome

It is a triad of RA, splenomegaly and neutropaenia. Hypersplenism may also cause anaemia and thrombocytopaenia. Usually only in longstanding, deforming, high rheumatoid factor RA. Often also have antinuclear antibodies. Lymphadenopathy, pigmentation and persistent skin ulcers occur. Splenectomy may help neutropaenia, as may disease-modifying therapy, steroids and GM-CSF. Bacterial infections are common. Granulocyte- specific antinuclear antibodies contribute to leucopaenia. There is an increased risk of lymphoproliferative disease in these patients. Rheumatoid vasculitis is also more common .

Lymphoma is more common in patients with rheumatoid arthritis and is the differential diagnosis in this setting .

Her pulmonary function tests are potentially within the normal range which suggests that rheumatoid lung disease is unlikely to be a contributing factor .

Pulmonary complications of RA are :

- .1Cricothytenitis
- .2Pulmonary nodules/Caplan's syndrome (pulmonary nodules plus pneumoconiosis)
- .3Pleurisy pleural effusions (transudates, low cell count, low glucose, lymphocytic, rheumatoid factor)
- .4Interstitial pulmonary disease
  - \*Pulmonary fibrosis (NSIP)
  - \*Cryptogenic organising pneumonia(bronchiolitis obliterans organising pneumonia)
  - \*Pneumonitis
- .5Obliterative bronchiolitis
- .6Drug side effects (methotrexate induced fibrosis)
- .7Infections

Complications of NSAID use include flare of asthma (in aspirin-allergic individuals); GI erosions, bleeding, small intestinal webs; reduced creatinine clearance (reduced renal blood flow) and interstitial nephritis. You would expect the platelets to be raised if the anaemia was secondary to bleeding.



No.: 2

A 50-year-old with known rheumatoid arthritis presents to clinic, with a 2-month history of increasing breathlessness on exertion. She had received gold injections for many years, but had found she still had to take regular diclofenac for joint swelling. She was on no other therapy.

Hb 8.0

MCV 90

WCC 2.5

pl 100

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Ferritin raised

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Serum EP No paraprotein

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Rheumatoid factor 1/1240

ANA 1/640

The most likely explanation for her blood count abnormalities would be:

Options

- A. Gold therapy
- B. Lymphoma
- C. ITP
- D. Haemolytic anaemia
- E. Bleeding secondary to NSAIDS

No.: 2

A

Side effects of DMARDs are:

1. Leflunomide : *Hypertension *Cytopenias *GI/weight loss	2. Sulphasalazine : *Rash *Nausea/GI *Cytopenias *Azoospermia	3. Azathioprine : *Abn LFTs *Cytopenias *Pancreatitis
4. Cyclosporin : *Gum hypertrophy *Hypertrichosis *Diabetes *Hypertension *Headache *Cytopenias *Nephrotoxicity	5. Hydroxychloroquine : *GI *Headache, irritability *Psychosis, nightmares *Vestibular disturbance *Dermatitis, pigmentation, myositis *Maculopathy, neuropathy	6. Methotrexate : *Dermatitis, pruritus, stomatitis *Diarrhoea, abdo pain, nausea *Cytopenias *Abn LFTs/hepatic fibrosis/cirrhosis *Pulmonary fibrosis
7. Anti TNF (infliximab [monoclonal antibody to TNF receptor, given by iv infusion] or etanercept soluble TNF receptor, given subcut 3x/wk) THIRD line : *Cytopenias *SLE *MS *TB recrudescence	8. Gold / penicillamine : *Flushing (gold IM only) *Proteinuria, nephrotic syndrome (membranous GN) *Cytopenia *Dermatitis, pruritus, stomatitis *Interstitial lung disease/ bronchiolitis obliterans *Erosive arthritis	

Bony erosions near the articular margins are classical of RA. Paraarticular erosions are seen in gout, which have a sclerotic margin and classically a punched out appearance. Chronic, relapsing reactive arthritis may be associated with erosions, although this is not classical of disease. Similarly, the most common radiological feature in scleroderma is osteopenia and tuft resorption. However, erosive changes can occur. SLE classically causes arthralgia or a deforming arthritis without erosive changes.

Pulmonary complications of RA :

1. Crico-arytenitis
2. Pulmonary nodules / Caplan's syndrome (pulmonary nodules plus pneumoconiosis)
3. Pleurisy / pleural effusions (transudates, low cell count, low glucose, lymphocytic, rheumatoid factor)
4. Interstitial pulmonary disease :
  - \*Pulmonary fibrosis (NSIP)
  - \*Cryptogenic organising pneumonia (bronchiolitis obliterans organising pneumonia)
  - \*Pneumonitis
5. Obliterative bronchiolitis
6. Drug side effects (methotrexate induced fibrosis)
7. Infections

Causes of renal involvement in RA :

1. Acute tubulo-interstitial nephritis secondary to NSAIDs
2. Renal papillary necrosis secondary to analgesic abuse
3. Renal amyloid
4. Membranous nephropathy secondary to gold/penicillamine
5. Minimal change glomerulonephritis secondary to NSAIDs



No.: 3

A 50-year-old with known rheumatoid arthritis presents to clinic, with a 2-month history of increasing breathlessness on exertion. She had received gold injections for many years, but had found she still had to take regular diclofenac for joint swelling. She had early morning stiffness lasting about an hour. She was on no other therapy. She had no history of cough, sputum or wheeze. She described ankle swelling over the preceding 6 weeks. She had no other medical history. On examination of her hands, she had evidence of a symmetrical deforming arthropathy. There was no evidence of rash. Pulse was 80 regular, BP 130/80 and her JVP was not raised. She had evidence of pitting edema to her mid thigh. She had fine end-inspiratory crackles at both bases. On examination of the abdomen, there was a spleen tip palpable. There was no ascites.

Hb 8.0 bili 9

WCC 2.5 alk phos 80

Pl 100 AST 32

MCV 81 alb 26

ESR 65

Na 137 IgG 23

K 3.8 IgA 2

Urea 8 IgM 1.4

Creat 130

Rheumatoid factor 1/1240

ANA 1/640

Serum EP  $\diamond$  no paraprotein

CXR normal

PFTs :

FEV1 1.8

FVC 2.1

TLCO 65%

Urine dipstick: protein +++ blood nil

The next investigations should include :

Options

A. Aspiration of her MCP joints

B. Transbronchial biopsy

C. Echo

D. Urine for Bence Jones proteins

E. 24 hour urine collection for protein

No.: 3

E

\*ARA criteria for RA

4or more of:

Morning stiffness &gt;1hour

Soft tissue swelling of 3 or more joint areas

Swelling of PIP, MCP or wrist

Symmetrical arthritis

Rheumatoid nodules

High titer rheumatoid factor

Radiographic evidence  $\diamond$  hand or foot

\*Felty's syndrome

Triad of RA, splenomegaly and leucopenia .

Hypersplenism may also cause anemia and thrombocytopenia .

Usually only in longstanding, deforming high rheumatoid factor RA .

Often also have antinuclear antibodies .

Lymphadenopathy, pigmentation and persistent skin ulcers occur .

Splenectomy may help neutropenia, as may disease modifying therapy, steroids and G-CSF .

Bacterial infections are common .

Granulocyte specific antinuclear antibodies contribute to leucopenia .

There is an increased risk of lymphoproliferative disease in these patients .

\*Side effects of DMARDs (تم ذكر ها في سؤال رقم 2 لنفس الفصل)

Bony erosions near the articular margins are classical of RA. Paraarticular erosions are seen in gout, which have a sclerotic margin and classically a  $\diamond$ punched out $\diamond$  appearance. Chronic, relapsing reactive arthritis may be associated with erosions, although this is not classical of disease. Similarly, the most common radiological feature in scleroderma is osteopenia and tuft resorption. However, erosive changes can occur. SLE classically causes arthralgia or a deforming arthritis without erosive changes .

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.3Pleurisy / pleural effusions (transudates, low cell count, low glucose, lymphocytic, rheumatoid factor)

.4Interstitial pulmonary disease  $\square$ 

-Pulmonary fibrosis (NSIP)

-Cryptogenic organising pneumonia (= bronchiolitis obliterans organising pneumonia)

-Pneumonitis

.5Obliterative bronchiolitis

.6Drug side effects (methotrexate induced fibrosis)

.7Infections

\*Causes of renal involvement in RA

.1Acute tubulointerstitial nephritis secondary to NSAIDs

.2Renal papillary necrosis secondary to analgesic abuse

.3Renal amyloid

.4Membranous nephropathy secondary to gold / penicillamine

5. Minimal change glomerulonephritis secondary to NSAIDs.





No.: 4

A 72-year-old lady presents to A&E with a 1-week history of severe headache over her right brow. She gives a history of jaw ache while chewing food. She gives no history of visual abnormalities .

On examination she had mild tenderness over her right temporal artery, and some tenderness and weakness of her proximal muscles. She had nail fold erythema and tenderness .

Hb 9.3  
MCV 90  
WCC 7.5  
Pl 540  
CRP 35  
ESR 87  
CXR No abnormality

The immediate management would be:

Options

- A. Oral steroids
- B. IV Methylprednisolone
- C. Urgent temporal artery biopsy and then steroid therapy
- D. Muscle biopsy
- E. Skin biopsy of the nail folds and then steroid therapy

No.: 4

A

Giant cell arteritis :

Middle-sized vessel vasculitis, which encompasses both temporal arteritis and polymyalgia rheumatica. Temporal arteritis patients will usually have polymyalgic symptoms and it should be thought of as a spectrum of the same disease. Its symptoms include jaw claudication, amaurosis fugax and potential visual loss if there is involvement of the central retinal artery. Uncommon in those under 55 years of age. Predominantly women are affected. Morning stiffness affecting the girdle, and systemic symptoms such as weight loss, malaise and fever are common. It can be associated with a symmetrical peripheral arthritis. Malignancy should be excluded. The ESR is nearly always elevated and the CK normal. A high CK would be more suggestive of myositis .

In the absence of visual symptoms, it would be reasonable to start her on a moderate dose of prednisolone 20 or 30mg and monitor the CRP. If she had visual symptoms, she should be treated with 80mg prednisolone or IV methylprednisolone. The biopsy can be performed up to two weeks after starting steroids.





No.: 5

A 32-year-old woman presents to A&E with a hot swollen ankle. This had come on 3 weeks after return from a walking holiday in Vermont, USA. While on holiday she had been well, except for a circular rash on her leg, for which she had self-medicated with amoxycillin for 1 week, thinking that it was an infected bite. She had no previous medical history other than mild psoriasis. Her grandmother had suffered from rheumatoid arthritis. She had had a flu-like illness with swollen glands one week previously.

On examination she was afebrile. She had no evidence of lymphadenopathy or rash, and ENT examination was normal. Her pulse was 55/min, BP 120/85. Her heart sounds were normal. The ankle was hot and tender, with reduced range of movement. Other joint examination was normal. Neurological examination was normal.

ESR 46

CRP 50

U&amp;E normal

FBC normal

X-ray ankle no abnormality detected

Your next investigation would include :

Options

A. An autoantibody screen

B. An ASO titre

C. Blood cultures

No.: 5

C

Lyme disease

A tick-borne infection with the spirochete *Borrelia burgdorferi*. Peak incidence in summer and fall in endemic area e.g. Eastern seaboard.

First lesion is an expanding erythematous papule, erythema migrans at the site of tick bites. Occurs in 60-80% of patients. This is often associated with fatigue, fever, headache, neck stiffness, arthralgias and myalgias.

Musculoskeletal: recurrent brief attacks; may become chronic in one or more joints.

CNS: lymphocytic meningitis, cranial neuritis e.g. facial palsy, rarely encephalomyelitis. Chronically, may develop peripheral neuropathy, sleep disturbance.

Cardiovascular: 2nd-3rd grade AV conduction defects, which may be associated with myocarditis.

Lab Ix include direct detection, or Ig M/G to the spirochete in serum/CSF, with rising titre in convalescent serum. PCRs/Western blots may be available.

Treatment regimes include doxycycline in early disease, or amoxycillin/cephalosporins indicated for neurological and other complications.



No.: 6

A 32-year-old Portuguese man presents to clinic with a 3-year history of lower back pain, which has worsened in the last year since he stopped work as a cleaner on health grounds. His only background history is of psoriasis. He reports some breathlessness on exertion on systemic enquiry, and intermittent eye pain. On examination he had evidence of synovitis of his MCP joints, and loss of his lumbar lordosis. He had reduced flexion of his spine, and markedly restricted movements of his cervical spine. His sacroiliac joints were tender bilaterally. Straight leg raising was painful at 60 degrees bilaterally, but with no radiation of pain down his legs. His chest was clear, and heart sounds were faint but normal.

CRP 40  
ESR 80  
Hb 11.1  
WCC 4.5  
Pl 160  
Na 140  
K 3.7  
Urea 6  
Creat 105

ECG SR 90PA CXR Apical shadowing bilaterally. Enlarged cardiac silhouette. The most likely diagnosis is :

Options

- A. Psoriatic arthropathy
- B. Reactive arthritis
- C. Ankylosing spondylitis
- D. Rheumatoid arthritis
- E. Tuberculous arthritis

No.: 6

C

Ankylosing spondylitis - An inflammatory arthritis with a particular predilection for the axial skeleton, nearly always causing a bilateral sacroiliitis. Affects three times as many men as women. Treatment involves NSAIDs and physiotherapy. A symmetrical or asymmetrical peripheral arthritis may be present, and these patients may respond to conventional DMARDs such as methotrexate. A uveitis occurs in 20-40% of patients, and does not reflect disease activity, and conjunctivitis may occur. Other cardiac complications other than AV conduction defects include an ascending aortitis, AR and a cardiomyopathy. Fibrosis if it occurs (rare) classically affects the apices, and can be colonised by *Aspergillus*. Other complications can include amyloidosis, IgA nephropathy, osteoporosis (and fractures secondary to this/trauma) and atlanto-axial subluxation. The association with HLA B27 is extremely strong, with in excess of 90% of individuals carrying this allele. High CRP may reflect disease activity more than high ESR. X-ray changes are classical, with erosions and sclerosis of the SI joints, **◈squaring◈** or romanus lesions of the vertebrae, with syndesmophytes causing **◈bridging◈** and ultimately fusion - a bamboo spine.

No.: 7



A 32-year-old Portuguese man presents to clinic with a 3-year history of lower back pain, which has worsened in the last year since he stopped work as a cleaner on health grounds. His only background history is of psoriasis. He reports some breathlessness on exertion and intermittent eye redness and pain. On examination he has synovitis of his metacarpophalangeal (MCP) joints, and loss of his lumbar lordosis. He has reduced flexion of his spine. His sacroiliac joints were tender bilaterally. Straight leg raising was painful at 60 degrees bilaterally, but with no radiation of pain down his legs. His chest was clear, and heart sounds were feint.

C-reactive protein (CRP) 40

Erythrocyte sedimentation rate (ESR) 80

Hemoglobin (Hb) 11.1

White cell count (WCC) 4.5

Platelets (Pl) 160

Na 140

K 3.7

Urea 6

Creat 105

Echocardiogram (ECG) SR 90 PA

Chest X-ray (CXR) Apical shadowing bilaterally

Enlarged cardiac silhouette. X-ray thoracic spine. X-ray sacroiliac joints: Bilateral sacroiliitis, grade 2.

The next most important investigation(s) to help determine immediate management should be :

Options

A. HLA B27

B. X-ray lumbar spine and ESR

C. Echocardiogram and computed tomography (CT) thorax

D. Pulmonary function tests and 24-hour tape

E. Early morning urine sampling and blood cultures for mycobacteria

No.: 7

C

This gentleman has ankylosing spondylitis as evidenced by his X-rays, which show flowing syndesmophytes and sacroiliitis. Given the apical shadowing bilaterally and enlarged cardiac silhouette it is important to exclude systemic complications such as apical fibrosis or aortic regurgitation/dilated cardiomyopathy. Therefore, echocardiography and CT thorax would be investigations of choice. The history is quite long for a tuberculosis (TB) spondylitis, and the X-rays are not in keeping with this. B27 would not be particularly informative in this scenario (when a diagnosis of AS is very likely). Pulmonary function tests and lumbar spine X-rays would be useful at some stage but are less of a clinical priority.

Ankylosing spondylitis

An inflammatory arthritis with a particular predilection for the axial skeleton, nearly always causing a bilateral sacroiliitis. Affects three times as many men as women. Treatment involves NSAIDs and physiotherapy. A symmetrical or asymmetrical peripheral arthritis may be present, and these patients may respond to conventional DMARDs such as methotrexate. A uveitis occurs in 20-40% of patients, and does not reflect disease activity, and conjunctivitis may occur. Other cardiac complications other than atrio-ventricular (AV) conduction defects include an ascending aortitis, aortic regurgitation (AR) and a cardiomyopathy. Fibrosis if it occurs (rare) classically affects the apices, and can be colonised by aspergillus. Other complications can include amyloidosis, IgA nephropathy, osteoporosis (and fractures secondary to this/trauma) and atlanto-axial subluxation. The association with HLA B27 is extremely strong, with in excess of 90% of individuals carrying this allele. High CRP may reflect disease activity more than high ESR. X-ray changes are classical, with erosions and sclerosis of the SI joints,  $\diamond$ squaring $\diamond$  or romanus lesions of the vertebrae, with syndesmophytes causing  $\diamond$ bridging $\diamond$  and ultimately fusion  $\diamond$  a bamboo spine.





No.: 8

A 32-year-old Portuguese man presents to clinic with a 3-year history of lower back pain, which has worsened in the last year since he stopped work as a cleaner on health grounds. His only background history is of psoriasis. He reports some breathlessness on exertion on systemic enquiry, and intermittent eye pain. On examination he had evidence of synovitis of his MCP joints, and loss of his lumbar lordosis. He had reduced flexion of his spine, and markedly restricted movements of his cervical spine. His sacroiliac joints were tender bilaterally. Straight leg rising was painful at 60 degrees bilaterally, but with no radiation of pain down his legs. His chest was clear, and heart sounds were feint but normal.

C-reactive protein (CRP) 40  
 Erythrocyte sedimentation rate (ESR) 80  
 Hemoglobin (Hb) 11.1  
 White cell count (WCC) 4.5  
 Platelets (Pl) 160  
 Na 140  
 K 3.7  
 Urea 6  
 Creat 105  
 ECG Sinus rhythm 90  
 Chest X-ray (CXR) Apical shadowing bilaterally

Enlarged cardiac silhouette. The next most important investigation would be :






Options

- A. Computed tomography (CT) thorax
- B. Timed walk
- C. Echocardiogram

No.: 8

C

Ankylosing spondylitis

An inflammatory arthritis with a particular predilection for the axial skeleton, nearly always causing a bilateral sacroiliitis. Affects three times as many men as women. Treatment involves NSAIDs and physiotherapy. A symmetrical or asymmetrical peripheral arthritis may be present, and these patients may respond to conventional DMARDs such as methotrexate. A uveitis occurs in 20-40% of patients, and does not reflect disease activity, and conjunctivitis may occur. Other cardiac complications other than atrio-ventricular (AV) conduction defects include an ascending aortitis, aortic regurgitation (AR) and a cardiomyopathy. Fibrosis if it occurs (rare) classically affects the apices, and can be colonised by aspergillus. Other complications can include amyloidosis, IgA nephropathy, osteoporosis (and fractures secondary to this/trauma) and atlanto-axial subluxation. The association with HLA B27 is extremely strong, with in excess of 90% of individuals carrying this allele. High CRP may reflect disease activity more than high ESR. X ray changes are classical, with erosions and sclerosis of the SI joints, squaring or romanus lesions of the vertebrae, with syndesmophytes causing bridging and ultimately fusion  a bamboo spine.





No.: 9

A 32-year-old Portuguese man presents to clinic with a 3-year history of lower back pain, which has worsened in the last year since he stopped work as a cleaner on health grounds. His only background history is of psoriasis. He reports some breathlessness on exertion on systemic enquiry, and intermittent eye pain. On examination he had evidence of synovitis of his metacarpophalangeal (MCP) joints, and loss of his lumbar lordosis. He had reduced flexion of his spine, and markedly restricted movements of his cervical spine. His sacroiliac joints were tender bilaterally. Straight leg rising was painful at 60 degrees bilaterally, but with no radiation of pain down his legs. His chest was clear, and heart sounds were feint but normal.

C-reactive protein (CRP) 40  
 Erythrocyte sedimentation rate (ESR) 80  
 Hemoglobin (Hb) 11.1  
 White cell count (WCC) 4.5  
 Platelets (Pl) 160  
 Na 140  
 K 3.7  
 Urea 6  
 Creat 105  
 Echocardiogram (ECG) SR 90 PA  
 Chest X-ray (CXR) Apical shadowing bilaterally

Enlarged cardiac silhouette. The next most important investigation would be :

Options

- A. 24-hour tape
- B. Pulmonary function tests
- C. ASO titre

No.: 9

B

Ankylosing spondylitis

An inflammatory arthritis with a particular predilection for the axial skeleton, nearly always causing a bilateral sacroiliitis. Affects three times as many men as women. Treatment involves NSAIDs and physiotherapy. A symmetrical or asymmetrical peripheral arthritis may be present, and these patients may respond to conventional DMARDs such as methotrexate. A uveitis occurs in 20-40% of patients, and does not reflect disease activity, and conjunctivitis may occur. Other cardiac complications other than atrio-ventricular (AV) conduction defects include an ascending aortitis, aortic regurgitation (AR) and a cardiomyopathy. Fibrosis if it occurs (rare) classically affects the apices, and can be colonised by aspergillus. Other complications can include amyloidosis, IgA nephropathy, osteoporosis (and fractures secondary to this/trauma) and atlanto-axial subluxation. The association with HLA B27 is extremely strong, with in excess of 90% of individuals carrying this allele. High CRP may reflect disease activity more than high ESR. X-ray changes are classical, with erosions and sclerosis of the SI joints, squaring or romanus lesions of the vertebrae, with syndesmophytes causing bridging and ultimately fusion a bamboo spine.



No.: 10

A 23-year-old Caucasian with SLE presents to clinic, reporting breathlessness on exertion for 1 week, associated with dry cough. She has recently received iv methylprednisolone following deteriorating renal function, and has subsequently been taking oral prednisolone and azathioprine. She had been discharged 10 days previously. She had no other medical history. She does not smoke, and has not travelled abroad for 5 years .

On examination, pulse was 100, BP110/70. She had evidence of a malar rash. She was sweaty, with temp 37.7, but had no evidence of lymphadenopathy. ENT examination was normal. Her chest was wheezy through out with occasional crackles. Abdomen was soft and non-tender. There was no evidence of asymmetric calf swelling .

Hb 12.0

WCC 5.6

Pl 300

ESR 61

Na 146

K 5.0

Urea 10.1

Creat 204 (195 one week previously)

Alb 30

bili 9

Alk phos 45

ALT 21

PO2 11.1

CO2 4.1

pH 7.4

Bic 23

Sats 97%

ECG SR 110, right axis deviation

CXR left upper zone cavitating lesion, 4 cm in diameter

Blood cultures no growth

Autoantibody screen

ANA 1/640

DsDNA 1/600

Ro +

La +

RhF 1/640

Anti-cardiolipin IgM negative

The most likely cause of her breathlessness is :

Options

A. Pulmonary embolism

B. Fungal infection

C. SLE involvement of lung

D. Pulmonary tuberculosis

E. Wegener's granulomatosis

No.: 10

D

\*Although pulmonary embolism occurs with increased frequency in SLE, she is anti-cardiolipin antibody negative, and the pyrexia and wheeze are more suggestive of infection .

\*As she is immunosuppressed, any fungal infection would cause catastrophic illness quickly, and is unlikely to present in this way .

\*Wegener's is more common in men and unlikely in someone with an alternative connective tissue disease .

\* TB is always a concern in the immunosuppressed population, and can present non-specifically either as a primary presentation or reactivation.





No.: 11

A 23-year-old Caucasian with SLE presents to clinic, reporting breathlessness on exertion for 1 week, associated with dry cough. She has recently received IViv methylprednisolone following deteriorating renal function, and has subsequently been taking oral prednisolone and azathioprine. She had been discharged 10 days previously. She had no other medical history. She does not smoke, and has not travelled abroad for 5 years .

On examination, pulse was 100, BP110/70. She had evidence of a malar rash. She was sweaty, with temp 37.7, but had no evidence of lymphadenopathy. ENT examination was normal. Her chest was wheezy throughout with occasional crackles. Abdomen was soft and non-tender. There was no evidence of asymmetric calf swelling .

Hb 12.0 Alb 30

WCC 5.6 bili 9

Plt 300 alk phos 45

ESR 61 ALT 21

Na 146 PO2 11.1

K 5.0 CO2 4.1

urea 10.1 pH 7.4

Creat 204 (195 one week previously) bic 23

Sats 97%

ECG SR 110 right axis deviation

CXR left upper zone cavitating lesion 4 cm in diameter

Blood cultures no growth

Autoantibody screen

ANA 1/640

DsDNA 1/600

Ro +

La +

RhF 1/640

Anti-cardiolipin IgM negative

The most important next investigation would be :

Options

- A. Sputum for staining and microscopy for AFBs
- B. A CT pulmonary angiogram
- C. A bronchoscopy
- D. Complement levels
- E. Pulmonary function tests

No.: 11

A

\*Although pulmonary embolism occurs at increased frequency in SLE, she is anti-cardiolipin antibody negative, and the pyrexia and wheeze are more suggestive of infection .

\*As she is immunosuppressed, any fungal infection would cause catastrophic illness quickly, and is unlikely to present in this way .

\*Wegener's is more common in men and unlikely in someone with an alternative connective tissue disease .

\* TB is always a concern in the immunosuppressed population, and can present non-specifically either as a primary presentation or reactivation.





<p>No.: 12</p> <p>A 73-year-old male presented with an acute attack of gout in his left knee .</p> <p>What is the most likely underlying metabolic cause :</p> <p>Options</p> <p>A. Decreased renal excretion of uric acid B. Endogenous overproduction of uric acid C. Excessive dietary purine intake D. Lactic acidosis E. Starvation</p>	<p>No.: 12</p> <p>A</p> <p>The aetiology of gout can broadly be divided into cases where there is underexcretion of urate via the kidney (90%) or endogenous overproduction of uric acid (10%) although in practical terms the distinction is rarely made as it allopurinol is the mainstay of long-term treatment (not during the acute attack!) in both groups. In a 73 year old man it is almost certainly reduced renal excretion due to deteriorating renal function and possibly diuretic use. Excessive dietary intake of purines is unlikely to be the main cause in this case.</p>
<p>No.: 13</p> <p>A 68-year-old woman complained of pain at the base of her right thumb. There was tenderness and swelling of the right first carpo-metacarpal joint .</p> <p>What is the most likely diagnosis :</p> <p>Options</p> <p>A. Avascular necrosis of the scaphoid B. De Quervain's tenosynovitis C. Osteoarthritis D. Psoriatic arthritis E. Rheumatoid arthritis</p>	<p>No.: 13</p> <p>C</p> <p>Osteoarthritis of the 1st carpometacarpal joint is extremely common and in a 68yr old lady is the most likely diagnosis. Swelling is usually bony hard and due to osteophyte formation which can lead to the appearance of squaring of the hand. De Quervains tenosynovitis is a common overuse condition which present with pain at the base of the thumb but is not associated with joint swelling. This joint can be affected in RA and psoriatic arthritis but rarely on its own.</p>
<p>No.: 14</p> <p>A 28-year-old man presented with acute stiffness and swelling of his knees and ankles, and a painful rash on his legs. The ESR was 86mm in the first hour. Chest x-ray showed hilar lymphadenopathy .</p> <p>What is the most likely prognosis :</p> <p>Options</p> <p>A. Chronic arthritis B. Pulmonary fibrosis C. Renal failure D. Skin ulceration E. Spontaneous improvement</p>	<p>No.: 14</p> <p>E</p> <p>The description is typical of acute sarcoidosis with erythema nodosum, oligoarthropathy and hilar lymphadenopathy. This has a good prognosis and usually resolves spontaneously over 6-8 weeks.</p>





<p>No.: 15</p> <p>A 32-year-old woman with an eight year history of diffuse scleroderma presents to the Accident &amp; Emergency Department with a 12 hour history of drowsiness, nausea, vomiting and headache. She has had predominantly cutaneous and articular disease in the past with no significant internal organ involvement. She is anti-Scl 70 positive .</p> <p>On examination she has a GCS of 13/15, BP 205/125, normal heart sounds and clear lungs on auscultation. There are no focal neurological signs but she has protein ++ and blood + on urinalysis. Apart from a serum creatinine of 148 mmol/l, the initial blood tests are normal .</p> <p>The most important next step in management would be to :</p> <p>Options</p> <p>A. Arrange an urgent CT head scan B. Perform a lumbar puncture C. Start an intravenous infusion of labetalol D. Start an intravenous infusion of hydralazine E. Start an intravenous infusion of GTN</p>	<p>No.: 15</p> <p>D</p> <p>This patient had scleroderma renal crisis. This is the abrupt onset of arterial hypertension, grade III or IV changes on fundoscopy and rapid deterioration in renal function. Other features include altered consciousness, headache, nausea &amp; vomiting and confusion. The serum creatinine will be elevated in most cases at presentation, as may renin levels. Thrombocytopenia and microangiopathic hemolytic anaemia may also be seen. As with all patients with malignant (accelerated) hypertension, the patient should be managed in HDU/ITU, catheterized and arterial and CVP lines inserted to monitor fluid balance. Labetalol and esmolol are best avoided in scleroderma to prevent Raynaud's and digital ulceration. Hydralazine is the agent of choice if oral therapy cannot be given. Consider GTN and frusemide if there is evidence of LVF. ACE inhibitors are the antihypertensive of choice in longer term management and prevention. The prognosis, however, remain poor.</p>
<p>No.: 16</p> <p>A 73-year-old man gives a 3 month history of polyarthralgia affecting both shoulders, knees, wrists and hands. He describes early morning stiffness lasting for 2 hours. There is synovitis of his right knee and 2nd and 3rd MCP joints on both hands. He has a 5 kg weight loss and a low grade pyrexia of 37.7°C .</p> <p>Investigations reveal a normochromic, normocytic anaemia of Hb 8.8g/dl, ESR 67mm in the first hour, CRP 19g/l, Rheumatoid factor negative and antinuclear antibody negative, CPK 178 .</p> <p>What is the most likely diagnosis :</p> <p>Options</p> <p>A. Polyarteritis nodosa B. Polymyalgia Rheumatica C. Paraneoplastic syndrome D. Temporal arteritis E. Rheumatoid Arthritis</p>	<p>No.: 16</p> <p>E</p> <p>These findings fulfil the ACR criteria for rheumatoid arthritis. A positive RF only occurs in 70% of patient at presentation. Systemic features such as pyrexia and weight loss can occur without there being an underlying malignancy and are more common in elderly males with rheumatoid arthritis</p>



<p>No.: 17</p> <p>A 61-year-old lady presents with polyarthralgia and painful restricted movement of her fingers. She also complains of diarrhoea and has lost 4 kg of weight in the last 12 months. She is noted to have a facial rash and describes a tri-phasic colour change to her hands and feet on cold exposure .</p> <p>Her investigations reveal a normochromic normocytic anaemia, positive ANA (anti-centromere) pattern, anti-dsDNA negative, anti-SM, RNP, Ro and La negative .</p> <p>What is the most likely diagnosis :</p> <p>Options</p> <p>A. Rheumatoid arthritis B. Systemic lupus erythematosus C. Mixed connective tissue disease D. Progressive Systemic Sclerosis E. CREST (limited scleroderma)</p>	<p>No.: 17</p> <p>E</p> <p>The anti-centromere antibody is very specific for CREST. 15-20% of patients with progressive systemic sclerosis are anti-centromere positive but are more commonly anti-scl70 positive (anti-topoisomerase ). Her facial rash is due to telangiectasia, her painful fingers are due to a combination of Raynauds and sclerodactyly. The diarrhoea and weight loss are secondary to sclerodermatous involvement of the bowel with bacterial overgrowth and subsequent malabsorption.</p>
<p>No.: 18</p> <p>-59year-old lady presents with pain and marked swelling affecting her PIP, DIP and CMC joints on both hands. These episodes of pain and swelling have responded to NSAIDs prescribed by her GP. Plain radiographs demonstrate erosions of a gull's wing pattern but no periarticular osteoporosis .</p> <p>FBC is normal, RF and ANA are negative, ESR 31 mm in the first hour and CRP 9g/l. She is HLA-B27 negative. She denies any past medical history .</p> <p>What is the most likely diagnosis :</p> <p>Options</p> <p>A. Rheumatoid arthritis B. Seronegative arthritis C. Psoriatic arthritis D. Erosive osteoarthritis E. Polyarticular gout</p>	<p>No.: 18</p> <p>D</p> <p>The above scenario is classical for erosive inflammatory OA. The gull's wing or inverted T pattern of erosions are typical for erosive inflammatory OA. It is commonly confused with rheumatoid arthritis but of note there is no juxta-articular osteoporosis and she is RF negative.</p>



No.: 19

A 31-year-old man known to be HIV positive presents to clinic complaining of xerophthalmia, xerostomia, abdominal pain, weakness and exertional dyspnoea. He is noted to have marked bilateral facial swelling and hepatomegaly. Auscultation of his chest reveals a few fine scattered crepitations. He is RF, ANA, and ENA antibody negative .

What is the most likely diagnosis :

Options

- A. Lymphoma
- B. Mumps
- C. Systemic lupus erythematosus
- D. Diffuse infiltrative lymphocytic syndrome
- E. Sjogren's syndrome

No.: 19

D

Diffuse infiltrative lymphocytic syndrome (DILS) can present like Sjogren's syndrome with parotid gland enlargement and sicca symptoms but extraglandular manifestations are common and it is rare for the patient to have positive autoantibodies unlike Sjogren's syndrome. The weakness is due to a peripheral motor neuropathy. Aseptic meningitis and cranial nerve palsies can also occur. Lymphocytic interstitial pneumonitis is the most serious complication of DILS.





No.: 20

A 27-year-old woman is systemically unwell with swinging fever, 3kg weight loss over 2 months, generalised myalgia, polyarthralgia affecting wrists, knees, ankles, elbows and metacarpophalangeal joints, and a sore throat .

Investigations demonstrate normochromic normocytic anaemia 9.8g/l, ESR 81 mm in the first hour, CRP 31g/l, serum ferritin 1756mg/dl, RF negative, ANA negative, ENA negative, ASO titre <200iu .

What is the most likely diagnosis :

Options

- A. Seronegative rheumatoid arthritis
- B. Adult onset Still's disease
- C. Systemic lupus erythematosus
- D. Polymyositis
- E. Rheumatic fever

No.: 20

B

This clinical scenario fulfils the diagnostic criteria for Adult onset Still's disease. The fever occurs once or twice daily and is described as quotidian or diquotidian returning to 37°C or below between episodes. The characteristic evanescent salmon-coloured non-pruritic macular or maculopapular rash occurs in approximately 90% of patients and is often only seen when the patient is febrile and is easily missed. A very high serum ferritin level commonly occurs in AOSD but is not diagnostic, as ferritin levels of this magnitude can also occur in sepsis and in tuberculosis .

Major criteria ♦ The proposed major criteria include :

- Fever of at least 39°C lasting one week or longer
- Arthralgias or arthritis lasting two weeks or longer
- Characteristic rash which is a macular or maculopapular, nonpruritic salmon-pink eruption, usually apparent over the trunk or extremities during febrile episodes
- Leukocytosis (10,000/L or greater) with 80 percent or more granulocytes

Minor criteria ♦ Minor criteria include :

- Sore throat
- The recent development of significant lymph node swelling
- Hepatomegaly or splenomegaly
- Abnormal liver function studies, particularly aminotransferases and lactate dehydrogenase
- Negative tests for antinuclear antibody and rheumatoid factor

Exclusions ♦ The following findings must not be present in ASD :

- Infection, such as infectious mononucleosis or parvovirus B19
- Malignancy, particularly lymphoma

Other rheumatic diseases such as polyarteritis nodosa, systemic lupus erythematosus, or rheumatoid vasculitis with extraarticular features





No.: 21

A 61-year-old lady presents with polyarthralgia and painful restricted movement of her fingers. She also complains of diarrhoea and has lost 4 kg of weight in the last 12 months. She is noted to have a facial rash and describes a tri-phasic colour change to her hands and feet on cold exposure. She also describes painful tingling of both calves and feet that becomes worse at night. Both her ankle jerks are absent.

Her investigations reveal:

Hb 9.8g/dl

MCV 108 fl

platelets 178 X 10<sup>9</sup>/l

WCC 8.7 X 10<sup>9</sup>/l

Positive ANA (anti-centromere) pattern

anti-dsDNA negative

anti-SM negative

RNP negative

Ro and La negative.

How would you manage the chronic diarrhoea?

Options

- A. Regular loperamide
- B. Trial of tetracycline
- C. Sulphasalazine
- D. Mesalazine
- E. Prednisolone

No.: 21

B

The anti-centromere antibody is very specific for CREST. 15-20% of patients with progressive systemic sclerosis are anti-centromere positive but are more commonly anti-scl70 positive (anti-topoisomerase). Her facial rash is due to telangiectasia, her painful fingers are due to a combination of Raynaud's phenomenon and sclerodactyly.

The diarrhoea and weight loss are secondary to sclerodermatous involvement of the bowel with bacterial overgrowth and subsequent malabsorption leading to vitamin deficiency and subsequent peripheral neuropathy.





No.: 22

A 61-year-old lady presents with polyarthralgia and painful restricted movement of her fingers. She also complains of diarrhoea and has lost 4 kg of weight in the last 12 months. She is noted to have a facial rash and describes a tri-phasic colour change to her hands and feet on cold exposure. She also describes painful tingling of both calves and feet worse at night. Both her ankle jerks are absent.

Her investigations reveal:

Hb 9.8g/dl

MCV 108 fl

platelets 178 X 10<sup>9</sup>/l

WCC 8.7 X 10<sup>9</sup>/l

Positive ANA (anti-centromere) pattern

anti-dsDNA negative

anti-SM negative

RNP negative

Ro and La negative.

What is the most likely cause of her painful legs?

Options

- A. Nocturnal cramps
- B. Raynaud's phenomenon
- C. Mononeuritis multiplex
- D. Peripheral neuropathy
- E. Arterial insufficiency

No.: 22

**D**

The anti-centromere antibody is very specific for CREST. 15-20% of patients with progressive systemic sclerosis are anti-centromere positive but are more commonly anti-scl70 positive (anti-topoisomerase). Her facial rash is due to telangiectasia, her painful fingers are due to a combination of Raynauds and sclerodactyly.

The diarrhoea and weight loss are secondary to sclerodermatous involvement of the bowel with bacterial overgrowth and subsequent malabsorption leading to vitamin deficiency and subsequent peripheral neuropathy.





No.: 23

A 29-year-old woman presents to casualty with difficulty in breathing .

On clinical examination she has bilateral basal crepitations, with a collapsed nasal bridge, painful swollen MCPs and wrists, and episcleritis. She gave a history of worsening tinnitus, vertigo and decreased hearing .

CXR confirms pulmonary oedema .

Urinalysis negative for protein, blood and glucose .

Her blood test results reveal :

Hb 9.8g/dl

WCC 10.9 X 10<sup>9</sup>/l

platelets 540 X 10<sup>9</sup>/l .

Biochemistry profile normal

CRP 19g/l

ESR 47 mm in the first hour .

What is the most important investigation?

Options

A. Serum ANCA

B. VDRL

C. ECHO

D. Rheumatoid factor

E. High resolution CT scan of chest

No.: 23

C

Relapsing polychondritis (RP) is an auto-immune condition affecting cartilage. In this case the condition has involved the nasal cartilage causing a collapsed nasal bridge and has also involved the aortic root causing aortic regurgitation and LVF .

Wegener's granulomatosis does not affect the aortic valve/root .

Congenital syphilis which could cause a collapsed nasal bridge and aortitis would not have the other features in this patient which satisfy the diagnostic criteria for RP .

Laryngomalacia is one of the most serious complications of RP with a significant mortality.





No.: 24

A 29-year-old woman presents to casualty with difficulty in breathing.

On clinical examination she has bilateral basal crepitations, with a collapsed nasal bridge, painful swollen MCPs and wrists and episcleritis.

She gave a history of worsening tinnitus, vertigo and decreased hearing.

CXR confirms pulmonary oedema. Urinalysis negative for protein, blood and glucose.

Her blood test results reveal:

Hb 9.8g/dl

WCC 10.9 X 10<sup>9</sup>/l

platelets 540 X 10<sup>9</sup>/l

Biochemistry profile normal

CRP 19g/l

ESR 47 mm in the first hour

The patient's voice is noticed to be hoarse and she develops a persistent cough and marked wheeze that is un-reponsive to beta-agonists.

What is the diagnosis?

Options

- A. Congenital syphilis
- B. Wegener's granulomatosis
- C. Relapsing polychondritis
- D. Noonan's syndrome
- E. Progressive systemic sclerosis

No.: 24

C

Relapsing polychondritis (RP) is an auto-immune condition affecting cartilage .

In this case the condition has involved the nasal cartilage causing a collapsed nasal bridge and has also involved the aortic root causing aortic regurgitation and LVF .

Wegener's granulomatosis does not affect the aortic valve/root .

Congenital syphilis which could cause a collapsed nasal bridge and aortitis would not have the other features in this patient which satisfy the diagnostic criteria for RP .

Laryngomalacia is one of the most serious complications of RP with a significant mortality.







No.: 25

A 29-year-old woman presents to casualty with difficulty in breathing.

On clinical examination she has bilateral basal crepitations, with a collapsed nasal bridge, painful swollen MCPs and wrists, and episcleritis.

She gave a history of worsening tinnitus, vertigo and decreased hearing.

CXR confirms pulmonary oedema. Urinalysis negative for protein, blood and glucose.

Her blood test results reveal:

Hb 9.8g/dl

WCC 10.9 X 10<sup>9</sup>/l

platelets 540 X 10<sup>9</sup>/l

Biochemistry profile normal

CRP 19g/l

ESR 47 mm in the first hour

What complication has developed?

Options

A. Pulmonary fibrosis

B. Pneumonia

C. Laryngomalacia

D. Mononeuritis multiplex affecting the recurrent laryngeal nerve

E. Asthma

No.: 25

C

Relapsing polychondritis (RP) is an auto-immune condition affecting cartilage .

In this case the condition has involved the nasal cartilage causing a collapsed nasal bridge and has also involved the aortic root causing aortic regurgitation and LVF .

Wegener's granulomatosis does not affect the aortic valve/root .

Congenital syphilis which could cause a collapsed nasal bridge and aortitis would not have the other features in this patient which satisfy the diagnostic criteria for RP .

Laryngomalacia is one of the most serious complications of RP with a significant mortality.





No.: 26

A 53-year-old airline pilot presents with inflamed eyes and worsening polyarthralgia and left-sided pleuritic pain. He gives a 5 year history of migratory polyarthritis, axillary and inguinal lymphadenopathy, diarrhoea and 10kg weight loss over that time.

Blood tests results:

Hb 10.7g/dl

WCC 5.9 X 10<sup>9</sup>/l

platelets 432 X 10<sup>9</sup>/l

U&Es normal

total protein 75g/l

albumin 29g/l

bilirubin 13mmol/l

AST 30u/l

calcium 2.11mmol/l

CXR shows a small left pleural effusion

What is the most appropriate investigation? :

Options

- A. Isotope bone scan
- B. Small bowel biopsy
- C. Pleural biopsy
- D. Gliadin antibodies
- E. Colonoscopy

No.: 26

B

Whipple's disease is a systemic illness primarily affecting middle aged Caucasian males who usually present with a history of intermittent arthralgia, involving multiple joints over a period of time followed by the development of diarrhoea, steatorrhoea, weight loss and other organ involvement .

The causative organism is a rod shaped bacilli *Tropheryma whippelii* which stains with periodic acid-Schiff (PAS positive). The treatment is antibiotics for at least one year.





No.: 27

A 53-year-old airline pilot presents with inflamed eyes and worsening polyarthralgia, and left sided pleuritic pain. He gives a 5 year history of migratory polyarthritis, axillary and inguinal lymphadenopathy, diarrhoea and 10kg weight loss over that time.

Blood test results:

Hb 10.7g/dl

WCC 5.9 X 10<sup>9</sup>/l

plts 432 X 10<sup>9</sup>/l

U&Es normal

total protein 75g/l

albumin 29g/l

bilirubin 13mmol/l

AST 30u/l

calcium 2.11mmol/l

CXR shows a small left pleural effusion

What is the likely diagnosis?

Options

- A. Leukocyte adhesion deficiency syndrome
- B. Behcet's syndrome
- C. Crohn's disease
- D. Coeliac disease
- E. Whipple's disease

No.: 27

E

Whipple's disease is a systemic illness primarily affecting middle aged Caucasian males who usually present with a history of intermittent arthralgia involving multiple joints over a period of time followed by the development of diarrhoea, steatorrhoea, weight loss and other organ involvement .

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No.: 28

A 53-year-old airline pilot presents with inflamed eyes and worsening polyarthralgia, and left sided pleuritic pain. He gives a 5 year history of migratory polyarthritis, axillary and inguinal lymphadenopathy, diarrhoea and 10kg weight loss over that time .

Blood test results :

Hb 10.7g/dl  
WCC 5.9 X 10<sup>9</sup>/l  
platelets 432 X 10<sup>9</sup>/l  
U&Es normal  
total protein 75g/l  
albumin 29g/l  
bilirubin 13mmol/l  
AST 30u/l  
calcium 2.11mmol/l

CXR shows a small left pleural effusion

What is the correct treatment?

Options

- A. Sulphasalazine
- B. Gluten free diet
- C. Tetracycline
- D. Colchicine
- E. Prednisolone

No.: 28

C

Whipple's disease is a systemic illness primarily affecting middle aged Caucasian males who usually present with a history of intermittent arthralgia involving multiple joints over a period of time followed by the development of diarrhoea, steatorrhoea, weight loss and other organ involvement .

The causative organism is a rod shaped bacilli *Tropheryma whippelii* which stains with periodic acid-Schiff (PAS positive). The treatment is antibiotics for at least one year .

For a long time, the drug of choice was tetracycline, but more recently, trimethoprim-sulphamethoxazole combination has been shown to be more effective.







No.: 29

A 29-year-old Cypriot man gives a history of recurrent pain and swelling of the left knee. He also describes recurrent episodes of fever, pleuritic pain, and rash. He is then hospitalised with severe headache, photophobia and neck stiffness. He is lucid with a GCS of 15.

His blood test results:

Hb 13.8g/dl

plats 210 X 10<sup>9</sup>/l

WCC 4.9 X 10<sup>9</sup>/l

plasma glucose 6.5 mmol/l

CRP 39g/l

ESR 56 mm in the first hour

RF, ANA, ENA and ANCA negative

CSF analysis:

opening pressure 14cmH<sub>2</sub>O

protein 0.6 g/l

RBC 2 /ml

WBC 21/ml (100% lymphocytes)

CSF glucose 4.1 mmol/l

no organisms seen on microscopy

48hour culture of CSF negative

What is the most likely cause of the headache?

Options

- A. Tuberculous meningitis
- B. Herpes encephalitis
- C. Superior sagittal sinus thrombosis
- D. Aseptic meningitis
- E. Subarachnoid haemorrhage

No.: 29

D

Pleuritis can occur in FMF, but peritonitis is more common. Aseptic meningitis is a recognised clinical manifestation of FMF. The splenomegaly and proteinuria is due to the development of amyloidosis, not an infrequent consequence of untreated FMF.

Amyloidosis can complicate any condition characterised by a prolonged persistent acute phase response. The Marie-nostrin gene is only found in 85% of patients with FMF. The SAP scan is a quantitative investigation for the extent of amyloidosis. Colchicine given prophylactically in FMF is thought to offer some protection against the development of amyloidosis.





No.: 30

A 29-year-old Cypriot man gives a history of recurrent pain and swelling of the left knee. He also describes recurrent episodes of fever, pleuritic pain, and rash. He is then hospitalised with severe headache, photophobia and neck stiffness. He is lucid with a GCS of 15 .

His blood test results show :

Hb 13.8g/dl  
 plats 210 X 10<sup>9</sup>/l  
 WCC 4.9 X 10<sup>9</sup>/l  
 plasma glucose 6.5 mmol/l  
 CRP 39g/l  
 ESR 56 mm in the first hour  
 RF, ANA, ENA and ANCA negative

CSF analysis :

opening pressure 14cmH<sub>2</sub>O  
 protein 0.6 g/l  
 RBC 2 /ml  
 WBC 21/ml (100% lymphocytes)  
 CSF glucose 4.1 mmol/l  
 no organisms seen on microscopy 48 hour culture of  
 CSF negative

What is the diagnosis?

Options

- A. Familial Mediterranean fever
- B. Adult onset Still's disease
- C. Behcet's syndrome
- D. Familial Hibernian fever
- E. Non Hodgkin's lymphoma

No.: 30

A

Pleuritis can occur in Familial Mediterranean fever(FMF)whereas peritonitis occurs much more commonly. Aseptic meningitis is a recognised clinical manifestation of FMF. The splenomegaly and proteinuria is due to the development of amyloidosis, not an infrequent consequence of untreated FMF .

Amyloidosis can complicate any condition characterised by a prolonged persistent acute phase response. The Marie-nosstrin gene is only found in 85% of patients with FMF. The SAP scan is a quantative investigation for the extent of amyloidosis. Colchicine given prophylactically in FMF is thought to offer some protection against the development of amyloidosis.





No.: 31

A 29-year-old Cypriot man gives a history of recurrent pain and swelling of the left knee. He also describes recurrent episodes of fever, pleuritic pain and rash. He is then hospitalised with severe headache, photophobia and neck stiffness. He is lucid with a GCS of 15.

His blood test results reveal:

Hb 13.8g/dl  
 plats 210 X 10<sup>9</sup>/l  
 WCC 4.9 X 10<sup>9</sup>/l  
 plasma glucose 6.5 mmol/l  
 CRP 39g/l  
 ESR 56 mm in the first hour  
 RF, ANA, ENA and ANCA negative.

CSF analysis:

opening pressure 14cmH<sub>2</sub>O  
 protein 0.6 g/l  
 RBC 2 /ml  
 WBC 21/ml (100% lymphocytes)  
 CSF glucose 4.1 mmol/l  
 no organisms seen on microscopy  
 48hour culture of CSF negative.

Over the next 6 months the patient develops splenomegaly, swollen ankles and is noted to have persistent 2+ proteinuria on dipstick urinalysis.

Which investigation would be the most informative?

Options

- A. Renal ultrasound scan
- B. Rectal biopsy
- C. Biopsy of skin rash
- D. SAP scan
- E. Analysis for the Marie-nostrin gene

No.: 31

D

Pleuritis can occur in Familial Mediterranean Fever (FMF) although peritonitis does occur more commonly. Aseptic meningitis is a recognised clinical manifestation of FMF .

The splenomegaly and proteinuria is due to the development of amyloidosis, a not infrequent consequence of untreated FMF. Amyloidosis can complicate any condition characterised by a prolonged persistent acute phase response .

The Marie-nostrin gene is only found in 85% of patients with FMF. The SAP scan is a quantitative investigation for the extent of amyloidosis. Colchicine given prophylactically in FMF is thought to offer some protection against the development of amyloidosis.



No.: 32

A 29-year-old Cypriot man gives a history of recurrent pain and swelling of the left knee. He also describes recurrent episodes of fever, pleuritic pain and rash. He is then hospitalised with severe headache, photophobia and neck stiffness. He is lucid with a GCS of 15.

His blood test results reveal:

Hb 13.8g/dl  
 plats 210 X 10<sup>9</sup>/l  
 WCC 4.9 X 10<sup>9</sup>/l  
 plasma glucose 6.5 mmol/l  
 CRP 39g/l  
 ESR 56 mm in the first hour  
 RF, ANA, ENA and ANCA negative

CSF analysis:

opening pressure 14cmH<sub>2</sub>O  
 protein 0.6 g/l  
 RBC 2 /ml  
 WBC 21/ml (100% lymphocytes)  
 CSF glucose 4.1 mmol/l  
 no organisms seen on microscopy  
 48hour culture of CSF negative

Which treatment if instituted earlier in the course of the patient's illness may have been beneficial?

Options

- A. Methotrexate
- B. Cyclophosphamide
- C. Colchicine
- D. Prednisolone
- E. Celecoxib

No.: 32

C

Pleuritis can occur in Familial Mediterranean Fever(FMF)although peritonitis occurs more commonly. Aseptic meningitis is a recognised clinical manifestation of FMF .

The splenomegaly and proteinuria is due to the development of amyloidosis which is not infrequent consequence of untreated FMF. Amyloidosis can complicate any condition characterised by a prolonged persistent acute phase response .

The Marie-nostrin gene is only found in 85% of patients with FMF. The SAP scan is a quantative investigation for the extent of amyloidosis. Colchicine given prophylactically in FMF is thought to offer some protection against the development of amyloidosis.







No.: 33

A 31-year-old man known to be HIV positive presents to clinic complaining of xerophthalmia, xerostomia, abdominal pain and generalised weakness. He is noted to have marked bilateral facial swelling and hepatomegaly.

His blood test results reveal:  
 biochemical profile normal  
 CPK 178u/l  
 Hb 13.7g/dl  
 plats 180 X 109/ml  
 WCC 3.9 X 109/ml  
 RF, ANA and ENA negative.

He then develops progressive breathlessness on exertion, auscultation of his chest reveals scattered crepitations, his chest x-ray is unremarkable. Arterial blood gas analysis at rest is unremarkable.

Which complication has he developed?

Options

- A. Cardiomyopathy
- B. Pneumocystis carinii pneumonia
- C. Guillain-Barre syndrome with chest wall involvement
- D. Diffuse interstitial pneumonitis
- E. Multiple pulmonary emboli

No.: 33

D

Diffuse infiltrative lymphocytic syndrome (DILS) can present like Sjogren's syndrome with parotid gland enlargement and sicca symptoms .

Extra-glandular manifestations are common and it is rare for the patient to have positive auto-antibodies unlike Sjogren's syndrome .

The weakness is due to a peripheral motor neuropathy. Aseptic meningitis and cranial nerve palsies can also occur. Lymphocytic interstitial pneumonitis is the most serious complication of DILS.

No.: 34

A 37-year-old man presents with a painful scrotal ulcer and a hot swollen painful left knee. He is noted to have several oral ulcers including the hard palate, an acneiform rash and epididymitis. Both his eyes are red and painful .

What is the most appropriate investigation?

Options

- A. Auto-antibody profile
- B. Labelled white cell scan
- C. MRI of left knee
- D. Joint fluid analysis and STD screen
- E. Slit lamp analysis of both eyes

No.: 34

D

The presence of scrotal ulceration is highly suggestive of a diagnosis of Behçet's syndrome which is confirmed by the presence of several mouth ulcers with acne and arthritis .

Acne is unusual past the age of 30 unless on steroid treatment. Dizziness/tinnitus and epididymitis are not uncommon in this condition .

However anyone presenting with genital ulceration and arthritis must have an infective cause excluded. Another important feature to look for would be eye involvement and a history of pathergy. Blood tests are unhelpful as the auto-antibodies are usually negative and there is no acute phase response .

There is an increased incidence of arterial and venous thrombosis in Behçet's syndrome.



No.: 35

A 37-year-old man presents with a painful scrotal ulcer and a hot swollen painful left knee. He is noted to have several oral ulcers including the hard palate, an acneiform rash and epididymitis. Both his eyes are red and painful .

He then develops photophobia and neck stiffness and is noted to have pustules at previous venepuncture sites .

A lumbar puncture is performed and gives the following results :

opening pressure 15cm H<sub>2</sub>O  
protein 0.41g/l  
CSF glucose 4.2 mmol/l  
RBC 3/mm<sup>3</sup>  
WCC 4/mm<sup>3</sup> .

Shortly following this procedure he becomes obtunded with a GCS of 7/15 .

What is the diagnosis?

Options

- A. HIV related arthropathy
- B. Behçet's syndrome
- C. Systemic lupus erythematosus
- D. Syphilis
- E. Crohn's related arthropathy

No.: 35

B

The presence of scrotal ulceration is highly suggestive of a diagnosis of Behçet's syndrome which is confirmed by the presence of several mouth ulcers with acne and arthritis .

Acne is unusual past the age of 30 unless on steroid treatment. Dizziness/tinnitus and epididymitis are not uncommon in this condition .

However anyone presenting with genital ulceration and arthritis must have an infective cause excluded. Another important feature to look for would be eye involvement and a history of pathergy. Blood tests are unhelpful as the auto-antibodies are usually negative and there is no acute phase response .

There is an increased incidence of arterial and venous thrombosis in Behçet's syndrome.





No.: 36

A 37-year-old man presents with a painful scrotal ulcer and a hot swollen painful left knee. He is noted to have several oral ulcers including the hard palate, an acneiform rash and epididymitis. Both his eyes are red and painful.

He then develops photophobia and neck stiffness and is noted to have pustules at previous venepuncture sites.

A LP is performed and gives the following results:

opening pressure 15cm H<sub>2</sub>O

protein 0.41g/l

CSF glucose 4.2 mmol/l

RBC 3/mm<sup>3</sup>

WCC 4/mm<sup>3</sup>

Shortly following this procedure he becomes obtunded with a GCS of 7/15.

What is the most likely complication that has developed?

Options

- A. Subarachnoid haemorrhage
- B. Coning of the cerebellar tonsils
- C. Superior sagittal sinus thrombosis
- D. Encephalitis
- E. Aseptic meningitis

No.: 36

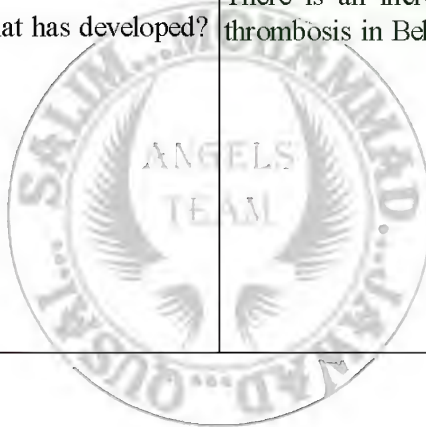
C

The presence of scrotal ulceration is highly suggestive of a diagnosis of Behçet's syndrome which is confirmed by the presence of several mouth ulcers with acne and arthritis .

Acne is unusual past the age of 30 unless on steroid treatment. Dizziness/tinnitus and epididymitis are not uncommon in this condition .

However anyone presenting with genital ulceration and arthritis must have an infective cause excluded. Another important feature to look for would be eye involvement and a history of pathergy. Blood tests are unhelpful as the auto-antibodies are usually negative and there is no acute phase response .

There is an increased incidence of arterial and venous thrombosis in Behçet's syndrome.





No.: 37

A 29-year-old male asthmatic is treated with B-agonists, inhaled steroids and montelukast. He presents with a painful left wrist, painful swollen right knee, vasculitic skin rash, right ulnar nerve palsy and left foot drop. He has had a previous left nephrectomy for carcinoma.

His blood tests reveal:

Hb 11.9g/dl  
 plats 439 X 10<sup>9</sup>/l  
 WCC 7.8 X 10<sup>9</sup>/l  
 neutrophils 4.1 X 10<sup>9</sup>/l  
 eosinophils 2.5 X 10<sup>9</sup>/l  
 lymphocytes 1.2 X 10<sup>9</sup>/l  
 ESR 45mm in the first hour  
 CRP 26 g/l  
 sodium 138 mmol/l  
 potassium 5.4 mmol/l  
 urea 10.8 mmol/l  
 creatinine 153 mmol/l

What is the diagnosis?

Options

- A. Polyarteritis nodosa
- B. Churg strauss vasculitis
- C. Wegeners granulomatosis
- D. Systemic lupus erythematosus
- E. Multicentric reticulohistiocytosis

No.: 37

B

The presence of eosinophilia with asthma, arthritis and mononeuritis multiplex make a diagnosis of Churg-Strauss vasculitis highly likely. The leukotriene antagonists are recognised precipitants of Churg Strauss vasculitis .

ANCA is usually positive in a p-ANCA pattern, the titre of anti-MPO does not reflect disease activity .

The condition usually responds to withdrawal of the inciting agent and immunosuppression with prednisolone. More resistant cases may require cyclophosphamide .

Renal and cardiac involvement are poor prognostic indicators.







No.: 38

A 29-year-old, asthmatic, male was treated with B-agonists, inhaled steroids and monteleukast. He presents with a painful left wrist, painful swollen right knee, vasculitic skin rash, right ulnar nerve palsy and left foot drop. He has had a previous left nephrectomy for carcinoma.

His blood tests results reveal:

Hb 11.9g/dl  
 plats 439 X 10<sup>9</sup>/l  
 WCC 7.8 X 10<sup>9</sup>/l  
 neutrophils 4.1 X 10<sup>9</sup>/l  
 eosinophils 2.5 X 10<sup>9</sup>/l  
 lymphocytes 1.2 X 10<sup>9</sup>/l  
 ESR 45mm in the first hour  
 CRP 26 g/l  
 sodium 138 mmol/l  
 potassium 5.4 mmol/l  
 urea 10.8 mmol/l  
 creatinine 153 mmol/l

What would be the most appropriate investigation to confirm the diagnosis?

Options

- A. High resolution CT scan of chest
- B. Renal biopsy
- C. Biopsy of nasal polyps
- D. Serum ANCA
- E. Mesenteric angiography

No.: 38

D

The presence of eosinophilia with asthma, arthritis and mononeuritis multiplex make a diagnosis of Churg Strauss vasculitis highly likely .

The leukotriene antagonists are recognised precipitants of Churg Strauss vasculitis .

ANCA is usually positive in a p-ANCA pattern, the titre of anti-MPO does not reflect disease activity .

The condition usually responds to withdrawal of the inciting agent and immunosuppression with prednisolone. More resistant cases may require cyclophosphamide .

Renal and cardiac involvement are poor prognostic indicators.





No.: 39

A 29-year-old, asthmatic male treated with B-agonists, inhaled steroids and monteleukast presents with a painful left wrist, painful swollen right knee, vasculitic skin rash, right ulnar nerve palsy and left foot drop. He has had a previous left nephrectomy for carcinoma .

His blood test results reveal :

Hb 11.9g/dl

plats 439 X 10<sup>9</sup>/l

WCC 7.8 X 10<sup>9</sup>/l

neutrophils 4.1 X 10<sup>9</sup>/l

eosinophils 2.5 X 10<sup>9</sup>/l

lymphocytes 1.2 X 10<sup>9</sup>/l

ESR 45mm in the first hour

CRP 26 g/l

sodium 138 mmol/l

potassium 5.4 mmol/l

urea 10.8 mmol/l

creatinine 153 mmol/l

What is the most important prognostic factor?

Options

A. Degree of CNS involvement

B. Degree of renal involvement

C. Anti-MPO titre

D. Degree of eosinophilia at presentation

E. Level of CRP

No.: 39

**B**

The presence of eosinophilia with asthma, arthritis and mononeuritis multiplex make a diagnosis of Churg Strauss vasculitis highly likely .

The leukotriene antagonists are recognised precipitants of Churg Strauss vasculitis .

ANCA is usually positive in a p-ANCA pattern, the titre of anti-MPO does not reflect disease activity .

The condition usually responds to withdrawal of the inciting agent and immunosuppression with prednisolone. More resistant cases may require cyclophosphamide .

Renal and cardiac involvement are poor prognostic indicators.





No.: 40

A 71-year-old man is referred to the Outpatient department with a 2 month history of general malaise, 3kg weight loss and increasingly poor mobility. He has noticed a facial rash and swelling over his knuckles.

On examination he is pale.

The cardiovascular and respiratory examinations are normal. The patient is cachexic and has a palpable liver edge, but there is no splenomegaly present.

His blood test results reveal the following results:

Hb 9.9g/dl  
MCV 75fl  
plats 540 X 109/l  
WCC 7.8 X 109/l  
CRP 35g/l  
ESR 57 in the first hour  
U&Es normal  
Bilirubin 34mmol/l  
AST 389 U/l  
alk.Phos 212 U/l  
RF 1/160  
ANA 1/80  
ENA negative  
ANCA negative

Which of the following investigations would you perform next?

Options

- A. CXR
- B. X-ray of hands and feet
- C. Serum creatine kinase
- D. Anti-dsDNA antibodies
- E. Thyroid function tests

No.: 40

C

The history of weakness with elevated muscle enzymes and characteristic neurophysiology is sufficient for a diagnosis of dermatomyositis .

The swelling over the knuckles is due to Gottron's papules .

The AST is disproportionately high compared to the other LFT's and a component of this will be muscle in origin. However the presence of weight loss, microcytic anaemia and abnormal LFTs with hepatomegaly means that carcinoma of the colon needs to be excluded .

There is not an increased incidence of underlying malignancy in those patients with polymyositis or dermatomyositis. However patients in this age group need to be fully investigated if there is a suspicion of underlying malignancy.





No.: 41

A 71-year-old man is referred to the Outpatient department with a 2 month history of general malaise, 3kg weight loss and increasingly poor mobility. He has noticed a facial rash and swelling over his knuckles .

On examination he is pale. His cardiovascular and respiratory examinations are normal. The patient is cachexic and has a palpable liver edge but there is no splenomegaly present .

His blood tests reveal the following results :

Hb 9.9g/dl  
MCV 75fl  
platelets 540 X 10<sup>9</sup>/l  
WCC 7.8 X 10<sup>9</sup>/l  
CRP 35g/l  
ESR 57 in the first hour  
U&Es normal  
Bilirubin 34mmol/l  
AST 389 U/l  
alk.Phos 212 U/l  
RF 1/160  
ANA 1/80  
ENA negative  
ANCA negative

An EMG shows evidence of fibrillation and polyphasic bursts .

What is the diagnosis?

Options

- A. SLE
- B. Paraneoplastic syndrome
- C. MCTD
- D. Dermatomyositis
- E. Motor neurone disease

No.: 41

D

The history of weakness with elevated muscle enzymes and characteristic neurophysiology is sufficient for a diagnosis of dermatomyositis .

The swelling over the knuckles is due to Gottrons papules .

The AST is disproportionately high compared to the other LFTs and a component of this will be muscle in origin .

However the presence of weight loss, microcytic anaemia and abnormal LFTs with hepatomegaly means that carcinoma of the colon needs to be excluded .

There is not an increased incidence of underlying malignancy in those patients with polymyositis or dermatomyositis. However patients in this age group need to be fully investigated if there is a suspicion of underlying malignancy.





No.: 42

A 71-year-old man is referred to the Outpatient department with a 2 month history of general malaise, 3kg weight loss and increasingly poor mobility. He has noticed a facial rash and swelling over his knuckles .

On examination he is pale. His cardiovascular and respiratory examinations are normal. The patient is cachexic and has a palpable liver edge but there is no splenomegaly present .

His blood tests reveal the following results :

Hb 9.9g/dl  
MCV 75fl  
platelets 540 X 10<sup>9</sup>/l  
WCC 7.8 X 10<sup>9</sup>/l  
CRP 35g/l  
ESR 57 in the first hour  
U&Es normal  
Bilirubin 34mmol/l  
AST 389 U/l  
alk.Phos 212 U/l  
RF 1/160  
ANA 1/80  
ENA negative  
ANCA negative

An EMG shows evidence of fibrillation and polyphasic bursts .

What further investigation would you request?

Options

- A. Bone marrow biopsy
- B. Colonoscopy
- C. Skin biopsy
- D. Muscle biopsy
- E. Isotope bone scan

No.: 42

B

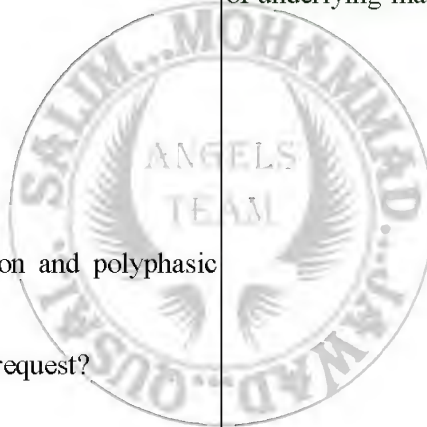
The history of weakness with elevated muscle enzymes and characteristic neurophysiology is sufficient for a diagnosis of dermatomyositis .

The swelling over the knuckles is due to Gottrons papules .

The AST is disproportionately high compared to the other LFTs and a component of this will be muscle in origin .

However the presence of weight loss, microcytic anaemia and abnormal LFTs with hepatomegaly means that carcinoma of the colon needs to be excluded .

Polymyositis/dermatomyositis may be part of a paraneoplastic syndrome. Therefore patients in this age group need to be fully investigated if there is a suspicion of underlying malignancy.





No.: 43

A 26-year-old air hostess is brought to the A&E department following a witnessed grand mal seizure.

She has been previously fit and well except for a history of mild intermittent arthralgia affecting both hands. Her only medication is the OCP. She smokes 20 cigarettes per day and drinks 15 units of alcohol per week.

On examination she has no focal neurology. There is slight puffiness of her fingers and she has a low grade pyrexia of 37.6 C  
BP 160/98 mmHg  
Fundoscopy reveals silver wiring and AV nipping bilaterally.  
Urinalysis tests 3+ blood 2+ protein

Her blood test results reveal:

Hb 9.9g/dl  
MCV 83fl  
WCC 3.1 X 10<sup>9</sup>/l  
platelets 117 X 10<sup>9</sup>/l  
CRP 2g/l  
ESR 71mm in the first hour  
Sodium 134 mmol/l  
potassium 5.1 mmol/l  
urea 10.1 mmol/l  
creatinine 178mmol/l  
Albumin 30g/l  
total protein 80g/l  
LFTs normal  
BM 7.8mmol

Clotting screen:  
PTT 11 seconds  
APTT 39seconds  
VDRL positive 1:320

Drug screen of urine negative  
Plasma alcohol not detected

What is the likely diagnosis?

Options

- A. Neurosyphilis
- B. Multiple sclerosis
- C. Pre-eclampsia
- D. Systemic lupus erythematosus
- E. HIV infection

No.: 43

D

The presentation with a fit in the absence of structural or metabolic derangement accompanied with pancytopenia, arthralgia, and an elevated ESR with normal CRP is indicative of Systemic lupus erythematosus(SLE) .

This patient has central nervous system (CNS) and renal lupus. The positive VDRL, prolonged APTT and PE is comtable with associated anti-phospholipid syndrome .

AVN is a well recognised complication of steroid treatment.





No.: 44

A 26-year-old airhostess is brought to the A&E department following a witnessed grand mal seizure .

She has been previously fit and well except for a history of mild intermittent arthralgia affecting both hands. Her only medication is the OCP. She smokes 20 cigarettes per day and drinks 15 units of alcohol per week .

\*On examination she has no focal neurology .

\*There is slight puffiness of her fingers and she has low-grade pyrexia of 37.6C .

\*BP 160/98 mmHg .

\*Fundoscopy reveals silver wiring and AV nipping bilaterally .

\*Urinalysis tests 3+, blood 2+ proteins .

Her blood test results reveal :

Hb 9.9 g/dl

MCV 83 fl

WCC 3.1 x 10<sup>9</sup>/l

Platelets 117 x 10<sup>9</sup>/l

CRP 2 g/l

ESR 71 mm in the first hour

Sodium 134 mmol/l

Potassium 5.1 mmol/l

Urea 10.1 mmol/l

Creatinine 178 mmol/l

Albumin 30 g/l

Total protein 80 g/l

LFTs Normal

BM 7.8 mmol

Clotting screen :

PTT 11 seconds

APTT 39 seconds

VDRL Positive 1:320

Drug screen of urine Negative

Plasma alcohol Not detected

What is the likely diagnosis?

Options

A. SLE

B. Epilepsy

C. Pulmonary embolism

D. Syphilis

E. Systemic sclerosis

No.: 44

A

The presentation with a fit in the absence of structural or metabolic derangement accompanied with pancytopenia, arthralgia, and an elevated ESR with normal CRP is indicative of systemic lupus erythematosus (SLE) .

This patient has central nervous system (CNS) and renal lupus. The positive VDRL, prolonged APTT and PE are compatible with associated anti-phospholipid syndrome .

AVN is a well-recognised complication of steroid treatment.





No.: 45

A 26-year-old air hostess is brought to A&E following a witnessed grand mal seizure. She has been previously fit and well except for a history of mild intermittent arthralgia affecting both hands. Her only medication is the OCP, she smokes 20/day and drinks 15 units of alcohol per week .

On examination, she has no focal neurology. There is slight puffiness of the fingers and a low grade pyrexia of 37.6°C. BP 160/98 mmHg. Fundoscopy reveals silver wiring and AV nipping bilaterally. Urinalysis tests 3+ blood, 2+ protein .

Hb 9.9g/dl  
MCV 83fl  
WCC 3.1 X 10<sup>9</sup>/l  
Platelets 117 X 10<sup>9</sup>/l  
CRP 2g/l  
ESR 71mm in the first hour  
Sodium 134 mmol/l  
Potassium 5.1 mmol/l  
Urea 10.1 mmol/l  
Creatinine 178 mmol/l  
Albumin 30 g/l  
Total protein 80 g/l  
LFTs normal  
BM 7.8 mmol

Clotting screen :  
PTT 11 seconds  
APTT 39 seconds

VDRL positive 1:320  
Drug screen of urine negative  
Plasma alcohol not detected

The patient then develops acute dyspnoea and examination reveals decreased air entry into the right base, tachycardia, BP 105/55, O<sub>2</sub> saturation 94% on room air .

She responds well to prednisolone and azathioprine, but at an OPD appointment 3 months later is complaining of worsening, right hip pain, poorly responsive to NSAIDs .

X-ray is normal but bone scan shows increased uptake in the hip .

What is the most likely cause of her hip pain?

Options

- A. Osteoporosis
- B. Avascular necrosis
- C. Septic arthritis
- D. Stress fracture
- E. Trochanteric bursitis

No.: 45

B

The presentation with a fit in the absence of structural or metabolic derangement accompanied with pancytopenia, arthralgia, and an elevated ESR with normal CRP is indicative of SLE. This patient has CNS and renal lupus. The positive VDRL, prolonged APTT and PE are compatible with associated anti-phospholipid syndrome .

AVN (Avascular necrosis) is a well recognised complication of steroid treatment.







No.: 46

A 26-year-old woman recently arrived in the UK from Somalia complains of marked neck pain with pins and needles affecting the right arm associated with a weak grip. Examination reveals her to be tender over the cervical spine with spasm of trapezius on the right hand side .

Radiographs of the cervical spine show narrowing of the C3/4 and C4/5 joint space and partial collapse of C4 .

Blood investigations show :

Hb 8.9 g/dl  
 WCC 12.1  
 Lymphocytes 9.7  
 Platelets 597  
 Serum ferritin 972mg/dl  
 ESR 134 mm in the first hour  
 CRP 321 g/l .  
 Calcium 2.11 micromol/l  
 Albumin 32 g/l  
 Alkaline phosphatase 197 units/l  
 Phosphate 0.8 micromol/l

What is the most likely diagnosis?

Options

- A. Metastatic cancer of the cervix
- B. Osteoporotic collapse
- C. Multiple myeloma
- D. Pott's disease
- E. Osteomalacia

No.: 46

D

Pott's disease is the most likely diagnosis due to the marked acute phase response with a lymphocytosis in an ethnic group at increased risk of tuberculosis. The elevated alkaline phosphatase is due to the recent fracture rather than metabolic bone disease and will remain elevated for several months following a fracture. The neurology is due to radicular compromise.





No.: 47

A 26-year-old woman recently arrived in UK from Somalia complains of marked neck pain with pins and needles affecting the right arm associated with a weak grip. Examination reveals tenderness over the cervical spine with spasm of trapezius on the right hand side .

Radiographs of the cervical spine show narrowing of the C3/4 and C4/5 joint space and partial collapse of C4 .

Investigations show :

Hb 8.9 g/dl  
WCC 12.1  
Lymphocytes 9.7  
Platelets 597  
Serum ferritin 972mg/dl  
ESR 134 mm in the first hour  
CRP 321 g/l  
Calcium 2.11 micromol/l  
Albumin 32 g/l  
Alkaline phosphatase 197 units/l  
Phosphate 0.8 micromol/l .

What is the next most important investigation?

Options

- A. Blood and urine cultures
- B. Serum protein electrophoresis and analysis of urine for BJP
- C. MRI of cervical spine
- D. NCS/EMG
- E. Vitamin D level

No.: 47

**C**  
Pott's disease is the most likely diagnosis due to the marked acute phase response with a lymphocytosis in an ethnic group at increased risk of tuberculosis. The elevated alkaline phosphatase is due to the recent fracture rather than metabolic bone disease and will remain elevated for several months following a fracture. The neurology is due to radicular compromise.





No.: 48

A 63-year-old lady has painful, tender, weak muscles to the extent that she has difficulty on rising from a chair. She also complains of polyarthralgia and Raynaud's syndrome.

Examination demonstrates sclerodactyly.

Investigations :

ESR 71 mm in the first hour  
CRP 34 g/l  
ANA >1/640 speckled pattern  
RF 1/160  
anti-dsDNA negative  
anti-Sm negative  
SS-A positive  
SS-B negative  
anti-RNP >1/640

What is the most likely diagnosis?

Options

- A. Mixed connective tissue disease (MCTD)
- B. CREST (limited scleroderma)
- C. Progressive systemic sclerosis
- D. Systemic lupus erythematosus
- E. Rheumatoid arthritis

No.: 48

A

MCTD is an overlap connective tissue disease with features of SLE, polymyositis and progressive systemic sclerosis. The characteristic auto-antibody pattern is of high titre anti-RNP and speckled pattern ANA.

EMG would confirm the presence of polymyositis.





No.: 49

A 63-year-old lady has painful tender weak muscles to the extent that she has difficulty on rising from a chair. She also complains of polyarthralgia and Raynaud's syndrome.

Examination demonstrates sclerodactyly.

Investigations :

ESR 71 mm in the first hour  
CRP 34 g/l .  
ANA >1/640 speckled pattern  
RF 1/160  
anti-dsDNA negative  
anti-Sm negative  
SS-A positive  
SS-B negative  
anti-RNP >1/640

Which investigation would be most helpful in confirming the diagnosis?

Options

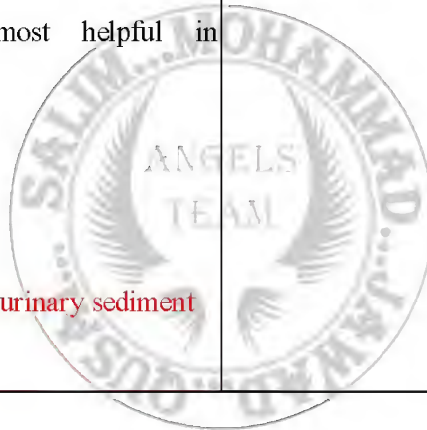
- A. Complement levels
- B. Anti-scl 70 antibodies
- C. EMG
- D. Urine analysis to look for an active urinary sediment
- E. Renal biopsy

No.: 49

C

MCTD is an overlap connective tissue disease with features of SLE, polymyositis and progressive systemic sclerosis. The characteristic auto-antibody pattern is of high titre anti-RNP and speckled pattern ANA.

EMG would confirm the presence of polymyositis.







No.: 50

A 47-year-old merchant seaman presents to the clinic with a painfully swollen, hot right knee. On questioning, he gives a 2-week history of migratory polyarthrititis and urethritis. Clinical examination reveals a pustular skin rash, right Achilles tendinitis and left plantar fasciitis .

Investigations :

U&Es normal, FBC normal, CRP 39 g/l, ESR 56 mm in the first hour

RF and ANA negative

The joint aspirate is turbid with 3+ pus cells, but the 48-hour culture is negative

What is the most likely diagnosis?

Options

- A. Psoriatic arthritis
- B. Gonococcal arthritis
- C. Reiter's syndrome
- D. Palindromic rheumatism
- E. Rheumatoid arthritis

No.: 50

B

Gonococcal arthritis classically presents with a hot joint on a background of a migrating polyarthropathy. Enthesopathy is common with gonococcal arthritis and also in psoriatic arthritis. The skin rash associated with gonococcal arthritis is characteristically vesico-pustular or haemorrhagic papules .

Joint aspirates can be culture negative but the organism can be isolated on blood cultures and urethral swabs.

No.: 51

A 47-year-old merchant seaman presents to the clinic with a painfully swollen, hot right knee. On questioning he gives a 2-week history of migratory polyarthrititis and urethritis. Clinical examination reveals a pustular skin rash, right Achilles tendinitis and left plantar fasciitis .

Investigations :

U&Es normal, FBC normal, CRP 39 g/l, ESR 56 mm in the first hour

RF and ANA negative

The joint aspirate is turbid with 3+ pus cells but the 48-hour culture is negative

What is your next investigation?

Options

- A. CxR
- B. Isotope bone scan
- C. MRI of knee
- D. Skin biopsy
- E. Blood cultures and urethral swabs

No.: 51

E

Gonococcal arthritis classically presents with a hot joint on a background of a migrating polyarthropathy. Enthesopathy is common with gonococcal arthritis and also in psoriatic arthritis. The skin rash associated with gonococcal arthritis is characteristically vesico-pustular or haemorrhagic papules .

Joint aspirates can be culture negative but the organism can be isolated on blood cultures and urethral swabs.



No.: 52

A 34-year-old male teacher is taken ill on returning from a 2-week walking holiday around Eastern Europe. He presents with headache, neck stiffness, photophobia, and right-sided Bell's palsy. He complains of polyarthralgia affecting shoulders, hips and knees associated with fever and fatigue for the previous 2 weeks associated with an urticarial-type rash affecting the right thigh .

What is the diagnosis?

Options

- A. Adult onset Still's disease
- B. Lyme disease
- C. C1-esterase inhibitor deficiency syndrome
- D. Rheumatic fever
- E. Hypocomplementaemic urticarial vasculitis syndrome

No.: 52

**B**  
This patient is presenting with the second stage of Lyme disease as characterised by the neurological involvement of his Bell's palsy. Lyme disease due to *Borrelia burgdorferi* is the commonest vector-borne disease in the USA, and occurs widely throughout Europe and the former Soviet Union. The rash is not always the characteristic erythema chronicum migrans; diffuse erythema, urticaria, evanescent rashes or even macular rashes can occur.

No.: 53

A 34-year-old male teacher is taken ill on returning from a 2-week walking holiday around Eastern Europe. He presents with headache, neck stiffness, photophobia, and right-sided Bell's palsy. He complains of polyarthralgia affecting shoulders, hips and knees associated with fever and fatigue for the previous 2 weeks associated with an urticarial-type rash affecting the right thigh .

What investigation will be the most informative?

Options

- A. Rheumatoid factor
- B. Complement levels
- C. ASO titre
- D. *Borrelia* serology
- E. Skin biopsy

No.: 53

**D**  
This patient is presenting with the second stage of Lyme disease as characterised by the neurological involvement of his Bell's palsy. Lyme disease due to *Borrelia burgdorferi* is the commonest vector-borne disease in the USA, and occurs widely throughout Europe and the former Soviet Union. The rash is not always the characteristic erythema chronicum migrans; diffuse erythema, urticaria, evanescent rashes or even macular rashes can occur.



No.: 54

A 19-year-old woman presents with recurrent pain and swelling of the right ankle. This was preceded by a rash which affected her palms and soles .

Plain radiographs of the feet and ankles demonstrate an irregularity to the lower tibia and fibula on the right side . FBC normal, Biochem profile normal, ESR 17 mm in the first hour, CRP 7 g/l . RF and ANA negative, HLA B27 positive .

What is the likely diagnosis?

Options

- A. Sarcoidosis
- B. Behcet's syndrome
- C. SAPHO syndrome
- D. Multicentric reticulohistiocytosis
- E. Recurrent periostitis

No.: 54

E

Recurrent periostitis is associated with palmar and plantar pustular psoriasis and frequently involves the ankle/foot. Early periostitis can be seen radiographically as an irregularity on the surface of the tibia and fibula. Recurrent periostitis responds well to treatment with sulphasalazine.

No.: 55

A 19-year-old woman presents with recurrent pain and swelling of the right ankle. This was preceded by a rash which affected her palms and soles .

Plain radiographs of the feet and ankles demonstrate an irregularity to the lower tibia and fibula on the right side . FBC normal, Biochem profile normal, ESR 17 mm in the first hour, CRP 7 g/l RF and ANA negative, HLA B27 positive

What is the likely cause of the rash?

Options

- A. Erythema nodosum
- B. Psoriasis
- C. Behcet's related pustulosis
- D. Erythema gyratum repens
- E. Beta haemolytic streptococcus

No.: 55

B

Recurrent periostitis is associated with palmar and plantar pustular psoriasis and frequently involves the ankle/foot. Early periostitis can be seen radiographically as an irregularity on the surface of the tibia and fibula. Recurrent periostitis responds well to treatment with sulphasalazine.



No.: 56

A 19-year-old woman presents with recurrent pain and swelling of the right ankle. This was preceded by a rash which affected her palms and soles .

Plain radiographs of the feet and ankles demonstrate an irregularity to the lower tibia and fibula on the right side . FBC normal, Biochem profile normal, ESR 17 mm in the first hour, CRP 7 g/l  
RF and ANA negative, HLA B27 positive

What is the most appropriate treatment?

Options

- A. Prednisolone
- B. Sulphasalazine
- C. Colchicine
- D. Flucloxacillin and fusidic acid
- E. Localised radiotherapy

No.: 56

B

Recurrent periostitis is associated with palmar and plantar pustular psoriasis and frequently involves the ankle/foot. Early periostitis can be seen radiographically as an irregularity on the surface of the tibia and fibula. Recurrent periostitis responds well to treatment with sulphasalazine.

No.: 57

A 29-year-old woman presents with malaise, low-grade pyrexia, weight loss and pain in both arms following exertion .

Examination is unremarkable except that her blood pressure is unrecordable in the left arm .

Hb 10.7g/dl  
plts 430 X 109/l  
WCC 8.9 X 109/l  
ESR 78 mm in the first hour  
CRP 37 g/l  
U&Es normal  
CPK 167 u/l

What is the most likely diagnosis?

Options

- A. Polymyositis
- B. Polymyalgia rheumatica
- C. Takayasu's arteritis
- D. Syphilitic coarctation of the aorta
- E. Thoracic outlet syndrome

No.: 57

C







No.: 58

A 29-year-old woman presents with malaise, low-grade pyrexia, weight loss and pain in both arms following exertion .

Examination is unremarkable except that her blood pressure is unrecordable in the left arm .

Hb 10.7g/dl  
 plats 430 X 109/l  
 WCC 8.9 X 109/l  
 ESR 78 mm in the first hour  
 CRP 37 g/l  
 U&Es normal  
 CPK 167 u/l

What investigation is indicated?

Options

- A. CT scan of thorax
- B. Arch-aortogram
- C. Temporal artery biopsy
- D. VDRL
- E. EMG

No.: 58

B

Takayasu's arteritis (pulseless disease) is a granulomatous vasculitis affecting large vessels in young women. It can present with absent pulses and/or coarctation of the upper limb vessels. In the early stage (pre-pulseless stage), it can present as a PUO . Arteriography will show wasting of the aorta or occlusion of its major branches.





No.: 59

A 61-year-old lady presents with polyarthralgia and painful restricted movement of her fingers. She also complains of diarrhoea and has lost 4 kg of weight in the last 12 months. She is noted to have a facial rash and describes a tri-phasic colour change to her hands and feet on cold exposure. She also describes painful tingling of both calves and feet worse at night. Both her ankle jerks are absent.

Her investigations reveal :

Hb 9.8 g/dl

MCV 108 fl

Plats 178 X 10<sup>9</sup>/l

WCC 8.7 X 10<sup>9</sup>/l

ANA Positive (anti-centromere) pattern

anti-dsDNA negative

anti-SM, RNP, Ro and La negative

What is the most likely diagnosis?

Options

- A. Rheumatoid arthritis
- B. Systemic lupus erythematosus
- C. Mixed connective tissue disease
- D. Progressive Systemic Sclerosis
- E. CREST (limited scleroderma)

No.: 59

The anti-centromere antibody is very specific for CREST. 15-20% of patients with progressive systemic sclerosis are anti-centromere positive but are more commonly anti-scl70 positive (anti-topoisomerase).

Her facial rash is due to telangiectasia, her painful fingers are due to a combination of Raynauds and sclerodactyly. The diarrhoea and weight loss are secondary to sclerodermatous involvement of the bowel with bacterial overgrowth and subsequent malabsorption leading to vitamin deficiency and subsequent peripheral neuropathy.





No.: 60

A 61-year-old lady presents with polyarthralgia and painful restricted movement of her fingers. She also complains of diarrhoea and has lost 4 kg of weight in the last 12 months. She is noted to have a facial rash and describes a tri-phasic colour change to her hands and feet on cold exposure. She also describes painful tingling of both calves and feet, worse at night. Both her ankle jerks are absent.

Her investigations reveal :

Hb 9.8 g/dl

MCV 108 fl

Plats 178 X 10<sup>9</sup>/l

WCC 8.7 X 10<sup>9</sup>/l

ANA Positive (anti-centromere) pattern

anti-dsDNA negative

anti-SM, RNP, Ro and La negative

How would you manage the chronic diarrhoea?

Options

- A. Regular loperamide
- B. Trial of tetracycline
- C. Sulphasalazine
- D. Mesalazine
- E. Prednisolone

No.: 60

B

The anti-centromere antibody is very specific for CREST. 15-20% of patients with progressive systemic sclerosis are anti-centromere positive but are more commonly anti-scl70 positive (anti-topoisomerase).

Her facial rash is due to telangiectasia, her painful fingers are due to a combination of Raynauds and sclerodactyly. The diarrhoea and weight loss are secondary to sclerodermatous involvement of the bowel with bacterial overgrowth and subsequent malabsorption leading to vitamin deficiency and subsequent peripheral neuropathy.





No.: 61

A 61-year-old lady presents with polyarthralgia and painful restricted movement of her fingers. She also complains of diarrhoea and has lost 4 kg of weight in the last 12 months. She is noted to have a facial rash and describes a tri-phasic colour change to her hands and feet on cold exposure. She also describes painful tingling of both calves and feet, worse at night. Both her ankle jerks are absent.

Her investigations reveal :

Hb 9.8 g/dl

MCV 108 fl

Plats 178 X 10<sup>9</sup>/l

WCC 8.7 X 10<sup>9</sup>/l

ANA Positive (anti-centromere) pattern

anti-dsDNA negative

anti-SM, RNP, Ro and La negative

What is the most likely cause of her painful legs?

Options

A. Nocturnal cramps

B. Raynaud's phenomenon

C. Mononeuritis multiplex

D. Peripheral neuropathy

No.: 61

**D**

The anti-centromere antibody is very specific for CREST. 15-20% of patients with progressive systemic sclerosis are anti-centromere positive but are more commonly anti-scl70 positive (anti-topoisomerase). Her facial rash is due to telangiectasia, her painful fingers are due to a combination of Raynauds and sclerodactyly. The diarrhoea and weight loss are secondary to sclerodermatous involvement of the bowel with bacterial overgrowth and subsequent malabsorption leading to vitamin deficiency and subsequent peripheral neuropathy.







No.: 62

A 29-year-old woman presents to casualty with difficulty in breathing. On clinical examination, she has bi-basal crepitations, with a collapsed nasal bridge, painful, swollen MCPs and wrists, and episcleritis. She gave a history of worsening tinnitus, vertigo and decreased hearing .

CXR confirms pulmonary oedema. Urine analysis negative for protein, blood and glucose .

Results :

Hb 9.8 g/dl

WCC 10.9 X 10<sup>9</sup>/l

Plats 540 X 10<sup>9</sup>/l .

Biochemistry profile normal

CRP 19 g/l

ESR 47 mm in the first hour

What is the most important investigation?

Options

A. Serum ANCA

B. VDRL

C. ECHO

D. Rheumatoid factor

E. High resolution CT scan of chest

No.: 62

C

Relapsing polychondritis is an autoimmune condition affecting cartilage. In this case the condition has involved the nasal cartilage causing a collapsed nasal bridge and has also involved the aortic root causing aortic regurgitation and LVF .

Wegener's granulomatosis does not affect the aortic valve/root .

Congenital syphilis, which could cause a collapsed nasal bridge and aortitis would not have the other features present in this patient which satisfy the diagnostic criteria for RP .

Laryngomalacia is one of the most serious complications of RP with a significant mortality.





No.: 63

A 53-year-old airline pilot presents with inflamed eyes and worsening polyarthralgia, and left-sided pleuritic pain. He gives a 5-year history of migratory polyarthritis, axillary and inguinal lymphadenopathy, diarrhoea and 10 kg weight loss over that time .

Results :

Hb 10.7 g/dl

WCC 5.9 X 10<sup>9</sup>/lPlats 432 X 10<sup>9</sup>/l

U&amp;Es normal

Total protein 75 g/l

Albumin 29 g/l

Bilirubin 13 mmol/l

AST 30 u/l

Calcium 2.11 mmol/l

CXR shows a small left pleural effusion

What is the most appropriate investigation?

Options

- A. Isotope bone scan
- B. Small bowel biopsy
- C. Pleural biopsy
- D. Gliadin antibodies
- E. Colonoscopy

No.: 63

B

Whipple's disease is a systemic illness primarily affecting middle-aged Caucasian males who usually present with a history of intermittent arthralgia involving multiple joints over a period of time followed by the development of diarrhoea, steatorrhoea, weight loss and other organ involvement. The causative organism is a rod-shaped bacilli *Tropheryma whippelii* which stains with periodic acid Schiff (PAS positive). The treatment is antibiotics for at least one year.





No.: 64

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Results :

Hb 10.7 g/dl

WCC 5.9 X 10<sup>9</sup>/lPlats 432 X 10<sup>9</sup>/l

U&amp;Es normal

Total protein 75 g/l

Albumin 29 g/l

Bilirubin 13 mmol/l

AST 30 u/l

Calcium 2.11 mmol/l

CXR shows a small left pleural effusion

What is the correct treatment?

Options

- A. Sulphasalazine
- B. Gluten-free diet
- C. Tetracycline
- D. Colchicine
- E. Prednisolone

No.: 64

C





No.: 65

A 29-year-old Cypriot man gives a history of recurrent pain and swelling of the left knee. He also describes recurrent episodes of fever, pleuritic pain, and rash. He is then hospitalised with severe headache, photophobia and neck stiffness. He is lucid with a GCS of 15 .

Results :

Hb 13.8 g/dl

Plats 210 X 10<sup>9</sup>/l

WCC 4.9 X 10<sup>9</sup>/l

Plasma glucose 6.5 mmol/l

CRP 39 g/l

ESR 56 mm in the first hour

RF, ANA, ENA and ANCA negative

CSF analysis :

- ---opening pressure 14 cmH<sub>2</sub>O
- ---protein 0.6 g/l
- ---RBC 2 /ml
- ---WBC 21/ml (100% lymphocytes)
- ---CSF glucose 4.1 mmol/l
- ---microscopy no organisms seen
- ---48 hour culture of CSF negative

Over the next 6 months, the patient develops splenomegaly, swollen ankles and is noted to have persistent 2+ proteinuria on dipstick urinalysis .

Which treatment if instituted earlier in the course of the patient's illness may have been beneficial?

Options

- A. Methotrexate
- B. Cyclophosphamide
- C. Colchicine
- D. Prednisolone
- E. Celecoxib

No.: 65

C

Pleuritis can occur in FMF (Familial Mediterranean Fever) as well as the commoner peritonitis. Aseptic meningitis is a recognised clinical manifestation of FMF. The splenomegaly and proteinuria is due to the development of amyloidosis, a not infrequent consequence of untreated FMF. Amyloidosis can complicate any condition characterised by a prolonged persistent acute phase response. The M68T polymorphism of the M68T gene is only found in 85% of patients with FMF. The SAP scan is a quantitative investigation for the extent of amyloidosis. Colchicine given prophylactically in FMF is thought to offer some protection against the development of amyloidosis.





No.: 66

A 31-year-old man known to be HIV positive presents to the clinic complaining of xerophthalmia, xerostomia, abdominal pain, and generalised weakness. He is noted to have marked bilateral facial swelling and hepatomegaly .

Results are as follows :

Biochemical profile normal

CPK 178 u/l

Hb 13.7g/dl

Plats 180 X 10<sup>9</sup>/ml

WCC 3.9 X 10<sup>9</sup>/ml

RF, ANA and ENA negative

What is the most likely diagnosis?

Options

- A. Lymphoma
- B. Mumps
- C. Systemic lupus erythematosus
- D. Diffuse infiltrative lymphocytic syndrome
- E. Sjogren's syndrome

No.: 66

D

DILS (Diffuse infiltrative lymphocytic syndrome) can present like Sjogren's syndrome with parotid gland enlargement and sicca symptoms but extraglandular manifestations are common and it is rare for the patient to have positive autoantibodies, unlike Sjogren's syndrome. The weakness is due to a peripheral motor neuropathy. Aseptic meningitis and cranial nerve palsies can also occur. Lymphocytic interstitial pneumonitis is the most serious complication of DILS.





No.: 67

A 31-year-old man known to be HIV positive presents to the clinic complaining of xerophthalmia, xerostomia, abdominal pain, and generalised weakness. He is noted to have marked bilateral facial swelling and hepatomegaly .

Results are as follows :

Biochemical profile normal

CPK 178 u/l

Hb 13.7g/dl

Plats 180 X 10<sup>9</sup>/ml

WCC 3.9 X 10<sup>9</sup>/ml

RF, ANA and ENA negative

He then develops progressive breathlessness on exertion, auscultation of his chest reveals scattered crepitations, his chest X-ray is unremarkable and arterial blood gas analysis at rest is unremarkable .

Which complication has he developed?

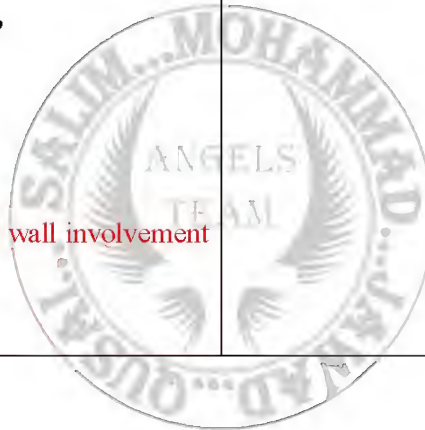
Options

- A. Cardiomyopathy
- B. Pneumocystis carinii pneumonia
- C. Guillain-Barre syndrome with chest wall involvement
- D. Diffuse interstitial pneumonitis
- E. Multiple pulmonary emboli

No.: 67

D

DILS (Diffuse infiltrative lymphocytic syndrome) can present like Sjogren's syndrome with parotid gland enlargement and sicca symptoms but extraglandular manifestations are common and it is rare for the patient to have positive autoantibodies, unlike Sjogren's syndrome. The weakness is due to a peripheral motor neuropathy. Aseptic meningitis and cranial nerve palsies can also occur. Lymphocytic interstitial pneumonitis is the most serious complication of DILS.





No.: 68

A 37-year-old man presents with a painful scrotal ulcer and a hot, swollen, painful left knee. He is noted to have several oral ulcers including on the hard palate, an acneiform rash and epididymitis. Both his eyes are red and painful .

He then develops photophobia and neck stiffness and is noted to have pustules at previous venepuncture sites. A LP is performed and gives the following results: opening pressure-15cm H<sub>2</sub>O, protein-0.41g/l, CSF glucose-4.2 mmol/l, RBC-3/mm<sup>3</sup>, WCC-4/mm<sup>3</sup>. Shortly following this procedure, he becomes obtunded with a GCS of 7/15 .

What is the diagnosis?

Options

- A. HIV-related arthropathy
- B. Behcet's syndrome
- C. Systemic lupus erythematosus
- D. Syphilis
- E. Crohn's-related arthropathy

No.: 68

B

The presence of scrotal ulceration is highly suggestive of a diagnosis of Behcet's syndrome, which is confirmed by the presence of several mouth ulcers with acne and arthritis. Acne is unusual past the age of 30, unless on steroid treatment. Dizziness/tinnitus and epididymitis are not uncommon in this condition .

However, anyone presenting with genital ulceration and arthritis must have an infective cause excluded. Another important feature to look for would be eye involvement and a history of pathergy. Blood tests are unhelpful as the autoantibodies are usually negative and there is no acute phase response .

There is an increased incidence of arterial and venous thrombosis in Behcet's syndrome.





No.: 69

A 29-year-old male, an asthmatic treated with B-agonists, inhaled steroids and monteleukast presents with a painful left wrist, painful swollen right knee, vasculitic skin rash, right ulnar nerve palsy and left foot drop. He has had a previous left nephrectomy for carcinoma .

Results :

Hb 11.9 g/dl

Plats 439 X 10<sup>9</sup>/lWCC 7.8 X 10<sup>9</sup>/lNeutrophils 4.1 X 10<sup>9</sup>/lEosinophils 2.5 X 10<sup>9</sup>/lLymphocytes 1.2 X 10<sup>9</sup>/l

ESR 45 mm in the first hour

CRP 26 g/l

Sodium 138 mmol/l

Potassium 5.4 mmol/l

Urea 10.8 mmol/l

Creatinine 153 mmol/l

What is the diagnosis?

Options

- A. Polyarteritis nodosa
- B. Churg-Strauss vasculitis
- C. Wegener's granulomatosis
- D. Systemic lupus erythematosus
- E. Multicentric reticulohistiocytosis

No.: 69

B

The presence of eosinophilia with asthma, arthritis and mononeuritis multiplex make a diagnosis of Churg-Strauss vasculitis highly likely. The leukotriene antagonists are recognised precipitants of Churg-Strauss vasculitis .

ANCA is usually positive in a p-ANCA pattern, the titre of anti-MPO does not reflect disease activity .

The condition usually responds to withdrawal of the inciting agent and immunosuppression with prednisolone. More resistant cases may require cyclophosphamide .

Renal and cardiac involvements are poor prognostic indicators.







No.: 70

A 29-year-old male, an asthmatic treated with B-agonists, inhaled steroids and monteleukast presents with a painful left wrist, painful swollen right knee, vasculitic skin rash, right ulnar nerve palsy and left foot drop. He has had a previous left nephrectomy for carcinoma .

Results :

Hb 11.9 g/dl

Plats 439 X 109/l

WCC 7.8 X 109/l

Neutrophils 4.1 X 109/l

Eosinophils 2.5 X 109/l

Lymphocytes 1.2 X 109/l

ESR 45 mm in the first hour

CRP 26 g/l

Sodium 138 mmol/l

Potassium 5.4 mmol/l

Urea 10.8 mmol/l

Creatinine 153 mmol/l

What would be the most appropriate investigation to confirm the diagnosis?

Options

- A. High resolution CT scan of chest
- B. Renal biopsy
- C. Biopsy of nasal polyps
- D. Serum ANCA
- E. Mesenteric angiography

No.: 70

D

The presence of eosinophilia with asthma, arthritis and mononeuritis multiplex make a diagnosis of Churg-Strauss vasculitis highly likely. The leukotriene antagonists are recognised precipitants of Churg-Strauss vasculitis .

ANCA is usually positive in a p-ANCA pattern, the titre of anti-MPO does not reflect disease activity .

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Renal and cardiac involvements are poor prognostic indicators.





No.: 71

A 29-year-old male, an asthmatic treated with B-agonists, inhaled steroids and monteleukast presents with a painful left wrist, painful swollen right knee, vasculitic skin rash, right ulnar nerve palsy and left foot drop. He has had a previous left nephrectomy for carcinoma .

Results :

Hb 11.9 g/dl

Plats 439 X 10<sup>9</sup>/lWCC 7.8 X 10<sup>9</sup>/lNeutrophils 4.1 X 10<sup>9</sup>/lEosinophils 2.5 X 10<sup>9</sup>/lLymphocytes 1.2 X 10<sup>9</sup>/l

ESR 45 mm in the first hour

CRP 26 g/l

Sodium 138 mmol/l

Potassium 5.4 mmol/l

Urea 10.8 mmol/l

Creatinine 153 mmol/l

What is the most important prognostic factor?

Options

A. Degree of CNS involvement

B. Degree of renal involvement

C. Anti-MPO titre

D. Degree of eosinophilia at presentation

E. Level of CRP

No.: 71

B

The presence of eosinophilia with asthma, arthritis and mononeuritis multiplex make a diagnosis of Churg-Strauss vasculitis highly likely. The leukotriene antagonists are recognised precipitants of Churg-Strauss vasculitis .

ANCA is usually positive in a p-ANCA pattern, the titre of anti-MPO does not reflect disease activity .

The condition usually responds to withdrawal of the inciting agent and immunosuppression with prednisolone. More resistant cases may require cyclophosphamide .

Renal and cardiac involvements are poor prognostic indicators.





No.: 72

A 71-year-old man is referred to Outpatients with a 2-month history of general malaise, 3 kg weight loss and increasingly poor mobility. He has noticed a facial rash and swelling over his knuckles .

On examination he is pale, CVS and RESP examinations are normal. He is cachectic with a palpable liver edge. There is no splenomegaly .

Results :

Hb 9.9 g/dl

MCV 75 fl

Plats 540 X 109/l

WCC 7.8 X 109/l

CRP 35 g/l

ESR 57 in the first hour

U&Es normal .

Bilirubin 34 mmol/l +

AST 389 U/l

Alk.Phos 212 U/l

RF 1/160

ANA 1/80

ENA negative

ANCA negative

Which of the following investigations would you perform next?

Options

A. CxR

B. X-ray of hands and feet

C. Serum creatine kinase

D. Anti-dsDNA antibodies

E. Thyroid function tests

No.: 72

C

The history of weakness with elevated muscle enzymes and characteristic neurophysiology is sufficient for a diagnosis of dermatomyositis. The swelling over the knuckles is due to Gottron's papules .

The AST is disproportionately high compared to the other LFTs and a component of this will be muscular in origin. However, the presence of weight loss, microcytic anaemia and abnormal LFTs with hepatomegaly means that carcinoma of the colon needs to be excluded .

There is no increased incidence of underlying malignancy in those patients with polymyositis or dermatomyositis. However, patients in this age group need to be fully investigated if there is a suspicion of underlying malignancy.





No.: 73

A 71-year-old man is referred to Outpatients with a 2-month history of general malaise, 3 kg weight loss and increasingly poor mobility. He has noticed a facial rash and swelling over his knuckles .

On examination he is pale, CVS and RESP examinations are normal. He is cachectic with a palpable liver edge. There is no splenomegaly .

Results :

Hb 9.9 g/dl

MCV 75 fl

Plats 540 X 109/l

WCC 7.8 X 109/l

CRP 35 g/l

ESR 57 in the first hour

U&Es normal .

Bilirubin 34 mmol/l

AST 389 U/l

Alk.Phos 212 U/l

RF 1/160

ANA 1/80

ENA negative

ANCA negative

An EMG shows evidence of fibrillation and polyphasic bursts. What is the diagnosis?

Options

A. SLE

B. Paraneoplastic syndrome

C. MCTD

D. Dermatomyositis

E. Motor neurone disease

No.: 73







No.: 74

A 26-year-old air hostess is brought to A&E following a witnessed grand mal seizure. She has been previously fit and well except for a history of mild intermittent arthralgia affecting both hands. Her only medication is the OCP, she smokes 20/day and drinks 15 units of alcohol per week .

On examination she has no focal neurology. There is slight puffiness of the fingers and low-grade pyrexia of 37.6°C. BP 160/98 mmHg. Fundoscopy reveals silver wiring and AV nipping bilaterally. Urine analysis tests show 3+ blood, 2+ protein .

## Results :

Hb 9.9 g/dl

MCV 83 fl

WCC 3.1 X 10<sup>9</sup>/lplatelets 117 X 10<sup>9</sup>/l

CRP 2 g/l

ESR 71 mm in the first hour

Sodium 134 mmol/l

potassium 5.1 mmol/l

urea 10.1 mmol/l

creatinine 178 mmol/l

Albumin 30 g/l

total protein 80 g/l

LFTs normal

BM 7.8 mmol

Clotting screen :

PTT 11 seconds

APTT 39 seconds

VDRL positive 1:320

Drug screen of urine negative

Plasma alcohol not detected

What is the likely diagnosis?

## Options

A. Neurosyphilis

B. Multiple sclerosis

C. Pre-eclampsia

D. Systemic lupus erythematosus

E. HIV infection

No.: 74

D

The presentation with a fit in the absence of structural or metabolic derangement accompanied with pancytopenia, arthralgia, and an elevated ESR with normal CRP is indicative of SLE .

This patient has CNS and renal lupus. The positive VDRL, prolonged APTT and PE is compatible with associated anti-phospholipid syndrome .

AVN is a well-recognised complication of steroid treatment.





No.: 75

A 26-year-old air hostess is brought to A&E following a witnessed grand mal seizure. She has been previously fit and well except for a history of mild intermittent arthralgia affecting both hands. Her only medication is the OCP, she smokes 20/day and drinks 15 units of alcohol per week .

On examination she has no focal neurology. There is slight puffiness of the fingers and low-grade pyrexia of 37.6°C. BP 160/98 mmHg. Fundoscopy reveals silver wiring and AV nipping bilaterally. Urine analysis tests show 3+ blood, 2+ protein .

Results :

Hb 9.9 g/dl  
 MCV 83 fl  
 WCC 3.1 X 10<sup>9</sup>/l  
 platelets 117 X 10<sup>9</sup>/l  
 CRP 2 g/l  
 ESR 71 mm in the first hour  
 Sodium 134 mmol/l  
 potassium 5.1 mmol/l  
 urea 10.1 mmol/l  
 creatinine 178 mmol/l  
 Albumin 30 g/l  
 total protein 80 g/l  
 LFTs normal  
 BM 7.8 mmol  
 Clotting screen :  
 PTT 11 seconds  
 APTT 39 seconds  
 VDRL positive 1:320  
 Drug screen of urine negative  
 Plasma alcohol not detected

Which investigation would be the most informative?

Options

- A. CT scan brain
- B. Lumbar puncture
- C. Renal biopsy
- D. HIV serology
- E. TPHA

No.: 75

**C**  
 The presentation with a fit in the absence of structural or metabolic derangement accompanied with pancytopenia, arthralgia, and an elevated ESR with normal CRP is indicative of SLE .

This patient has CNS and renal lupus. The positive VDRL, prolonged APTT and PE is compatible with associated anti-phospholipid syndrome .

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No.: 76

A 26-year-old air hostess is brought to A&E following a witnessed grand mal seizure. She has been previously fit and well except for a history of mild intermittent arthralgia affecting both hands. Her only medication is the OCP, she smokes 20/day and drinks 15 units of alcohol per week .

On examination she has no focal neurology. There is slight puffiness of the fingers and low-grade pyrexia of 37.6°C. BP 160/98 mmHg. Fundoscopy reveals silver wiring and AV nipping bilaterally. Urine analysis tests show 3+ blood, 2+ protein .

Results :

Hb 9.9 g/dl  
 MCV 83 fl  
 WCC 3.1 X 10<sup>9</sup>/l  
 platelets 117 X 10<sup>9</sup>/l  
 CRP 2 g/l  
 ESR 71 mm in the first hour  
 Sodium 134 mmol/l  
 potassium 5.1 mmol/l  
 urea 10.1 mmol/l  
 creatinine 178 mmol/l  
 Albumin 30 g/l  
 total protein 80 g/l  
 LFTs normal  
 BM 7.8 mmol  
 Clotting screen :  
 PTT 11 seconds  
 APTT 39 seconds  
 VDRL positive 1:320  
 Drug screen of urine negative  
 Plasma alcohol not detected

The patient then develops acute dyspnoea and examination reveals decreased air entry at the right base, tachycardia, BP 105/55. O<sub>2</sub> sats 94% on room air .

What is the most likely cause of her new symptoms?

Options

- A. Fat embolism
- B. Right lower lobe pneumonia
- C. Pulmonary embolus
- D. Mononeuritis multiplex affecting the phrenic nerve
- E. Right sided pleural effusion

No.: 76

C

The presentation with a fit in the absence of structural or metabolic derangement accompanied with pancytopenia, arthralgia, and an elevated ESR with normal CRP is indicative of SLE .

This patient has CNS and renal lupus. The positive VDRL, prolonged APTT and PE is compatible with associated anti-phospholipid syndrome .

AVN is a well-recognised complication of steroid treatment.





No.: 77

A 26-year-old air hostess is brought to A&E following a witnessed grand mal seizure. She has been previously fit and well except for a history of mild intermittent arthralgia affecting both hands. Her only medication is the OCP, she smokes 20/day and drinks 15 units of alcohol per week.

On examination she has no focal neurology. There is slight puffiness of the fingers and low-grade pyrexia of 37.6°C. BP 160/98 mmHg. Fundoscopy reveals silver wiring and AV nipping bilaterally. Urine analysis tests show 3+ blood, 2+ protein.

Results :

Hb 9.9 g/dl  
 MCV 83 fl  
 WCC 3.1 X 10<sup>9</sup>/l  
 platelets 117 X 10<sup>9</sup>/l  
 CRP 2 g/l  
 ESR 71 mm in the first hour  
 Sodium 134 mmol/l  
 potassium 5.1 mmol/l  
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 creatinine 178 mmol/l  
 Albumin 30 g/l  
 total protein 80 g/l  
 LFTs normal  
 BM 7.8 mmol  
 Clotting screen :  
 PTT 11 seconds  
 APTT 39 seconds  
 VDRL positive 1:320  
 Drug screen of urine negative  
 Plasma alcohol not detected

The patient then develops acute dyspnoea and examination reveals decreased air entry at the right base, tachycardia, BP 105/55. O<sub>2</sub> sats 94% on room air.

She responds well to prednisolone and azathioprine, but at an OPD appointment 3 months later is complaining of worsening right hip pain poorly responsive to NSAIDs.

X-ray is normal but bone scan shows increased uptake in the hip.

What is the most likely cause of her hip pain?

Options

- A. Osteoporosis
- B. Avascular necrosis
- C. Septic arthritis
- D. Stress fracture
- E. Trochanteric bursitis

No.: 77

The presentation with a fit in the absence of structural or metabolic derangement accompanied with pancytopenia, arthralgia, and an elevated ESR with normal CRP is indicative of SLE.

This patient has CNS and renal lupus. The positive VDRL, prolonged APTT and PE is compatible with associated anti-phospholipid syndrome.

AVN is a well-recognised complication of steroid treatment.







No.: 78

A 26-year-old woman recently arrived in the UK from Somalia complains of marked neck pain with pins and needles affecting the right arm associated with a weak grip .

Examination reveals her to be tender over the cervical spine with spasm of trapezius on the right hand side .

Radiographs of the cervical spine show narrowing of the C3/4 and C4/5 joint space and partial collapse of C4 .

Blood investigations show :

Hb 8.9 g/dl

WCC 12.1

Lymphocytes 9.7

Platelets 597

Serum ferritin 972 mg/dl

ESR 134 mm in the first hour

CRP 321 g/l

Calcium 2.11 micromol/l

Albumin 32 g/l

Alkaline phosphatase 197 units/l

Phosphate 0.8 micromol/l

What is the most likely diagnosis?

Options

A. Metastatic cancer of the cervix

B. Osteoporotic collapse

C. Multiple myeloma

D. Pott's disease

E. Osteomalacia

No.: 78

D

Pott's disease is the most likely diagnosis due to the marked acute phase response with a lymphocytosis in an ethnic group at increased risk of tuberculosis. The elevated alkaline phosphatase is due to the recent fracture rather than metabolic bone disease and will remain elevated for several months following a fracture. The neurology is due to radicular compromise.





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Calcium 2.11 micromol/l

Albumin 32 g/l

Alkaline phosphatase 197 units/l

Phosphate 0.8 micromol/l

What is the most important investigation?

Options

A. Blood and urine cultures

B. Serum protein electrophoresis and analysis of urine for BJP

C. MRI of cervical spine

D. NCS/EMG

E. Vitamin D level

No.: 79

C

Pott's disease is the most likely diagnosis due to the marked acute phase response with a lymphocytosis in an ethnic group at increased risk of tuberculosis. The elevated alkaline phosphatase is due to the recent fracture rather than metabolic bone disease and will remain elevated for several months following a fracture. The neurology is due to radicular compromise.





No.: 80

A 63-year-old lady has painful tender weak muscles to the extent that she has difficulty on rising from a chair. She also complains of polyarthralgia and Raynaud's syndrome .

Examination demonstrates sclerodactyly .

Investigations :

ESR 71 mm in the first hour

CRP 34 g/l

ANA >1/640 speckled pattern

RF 1/160

Anti-dsDNA negative

Anti-Sm negative

SS-A positive

SS-B negative

Anti-RNP >1/640

What is the most likely diagnosis?

Options

- A. Mixed connective tissue disease (MCTD)
- B. CREST (limited scleroderma)
- C. Progressive systemic sclerosis
- D. Systemic lupus erythematosus (SLE)
- E. Rheumatoid arthritis

No.: 80

A

MCTD is an overlap connective tissue disease with features of SLE, polymyositis and progressive systemic sclerosis. The characteristic auto-antibody pattern is of high titre anti-RNP and speckled pattern ANA.





No.: 81

A 63-year-old lady has painful tender weak muscles to the extent that she has difficulty on rising from a chair. She also complains of polyarthralgia and Raynaud's syndrome.

Examination demonstrates sclerodactyly.

Investigations :

ESR 71 mm in the first hour

CRP 34 g/l

ANA >1/640 speckled pattern

RF 1/160

Anti-dsDNA negative

Anti-Sm negative

SS-A positive

SS-B negative

Anti-RNP >1/640

Which investigation would be most helpful in confirming the diagnosis?

Options

A. Complement levels

B. Anti-scl70 antibodies

C. EMG

D. Urinalysis to look for an active urinary sediment

E. Renal biopsy

No.: 81

C

\*Mixed connective tissue disease is an overlap connective tissue disease with features of SLE, polymyositis and progressive systemic sclerosis. The characteristic auto-antibody pattern is of high titre anti-RNP and speckled pattern ANA.

\* EMG would confirm the presence of polymyositis.

No.: 82

A 47-year-old merchant seaman presents to clinic with a painfully swollen hot right knee. On questioning he gives a 2 week history of migratory polyarthritis and urethritis. Clinical examination reveals a pustular skin rash, right Achilles tendinitis and left plantar fasciitis. Investigations: U&Es normal FBC normal. CRP 39g/l. ESR 56mm in the first hour, RF and ANA negative. The joint aspirate is turbid with 3+ pus cells but the 48 hour culture is negative.

What is your next investigation?

Options

A. CXR

B. Isotope bone scan

C. MRI of knee

D. Skin biopsy

E. Blood cultures and urethral swabs

No.: 82

E

Gonococcal arthritis classically presents with a hot joint on a background of a migrating polyarthropathy. Enthesopathy is common with gonococcal arthritis and also in psoriatic arthritis. The skin rash associated with gonococcal arthritis is characteristically vesicopustular or haemorrhagic papules. Joint aspirates can be culture negative but the organism can be isolated on blood cultures and urethral swabs.





No.: 83

A 29-year-old woman presents with malaise, low grade pyrexia, weight loss and pain in both arms following exertion. Examination is unremarkable except her blood pressure is unrecordable in the left arm .

Hb 10.7g/dl

plts 430 X 109/l

WCC 8.9 X 109/l

ESR 78 mm in the first hour

CRP 37 g/l

U&Es normal

CPK 167 u/l

What investigation is indicated?

Options

- A. CT scan of thorax
- B. Arch-aortogram
- C. Temporal artery biopsy
- D. VDRL
- E. EMG

No.: 83

B

\*Takayasu's arteritis (pulseless disease) is a granulomatous vasculitis affecting large vessels in young women. It can present with absent pulses and/or coarctation of the upper limbs. In the early stage (pre-pulseless stage) it can present as a PUO .

\* Arteriography will show wasting of the aorta or occlusion of its major branches.





No.: 84

A 39-year-old American woman presents with a severe myalgia of sudden onset associated with muscle cramps, fatigue, general malaise and low grade fever. She denies the triphasic colour change of Raynauds phenomenon . She has no past medical history and is on no regular medication except vitamin supplements . Examination reveals sclerodermatous skin thickening affecting both hands and forearms .

Investigations :

Hb 11.6g/dl ,  
 plats 370 X 10<sup>9</sup>/l ,  
 WCC 11.2 X 10<sup>9</sup>/l ,  
 neutrophils 7.5 X 10<sup>9</sup>/l ,  
 lymphocytes 1.7 X 10<sup>9</sup>/l ,  
 eosinophils 1.9 X 10<sup>9</sup>/l .  
 U&Es normal ,  
 LFTs normal .  
 ESR 31 mm in the first hour ,  
 CRP 12 g/l .

What is the diagnosis :

Options

- A. Eosinophilia myalgia syndrome
- B. Eosinophilic fasciitis
- C. Limited systemic sclerosis
- D. Diffuse systemic sclerosis
- E. Paraneoplastic syndrome

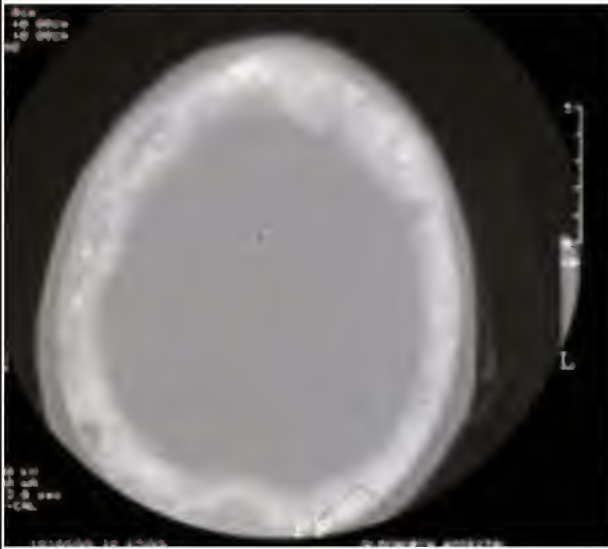
No.: 84

A

Eosinophilia myalgia syndrome (EMS) presents with severe myalgia, muscle cramps and constitutional upset. The blood eosinophil count should be greater than  $1 \times 10^9/l$ . The condition is associated with the ingestion of L-tryptophan. There is systemic involvement in EMS compared to EF. Raynaud's does not occur in EMS or Eosinophilic fasciitis (EF).



No.: 85



A 78-year-old woman is referred for headaches, worsening deafness and limb pains. A CT scan of her brain is shown (bone windows). She has a normal calcium and phosphate. Her Alkaline Phosphatase is 981 IU/l. What is the diagnosis :

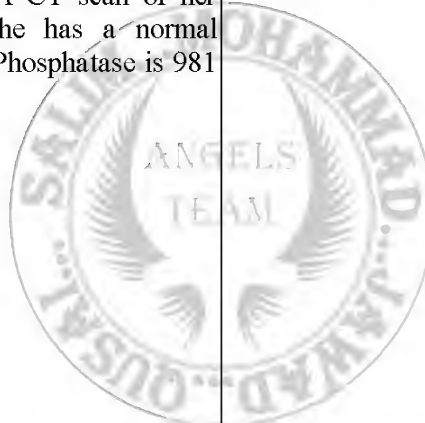
Options

- A. Osteoporosis
- B. Osteosarcoma
- C. Multiple myeloma
- D. Paget's disease of bone
- E. Osteomalacia

No.: 85

D

There is marked thickening of the skull vault and this with the history and the Alk Phos makes the diagnosis. The deafness is due to auditory nerve compression. The calcium is normal unless immobility occurs.



No.: 86



What is the cause of this man's hip pain as an inference you can get from the picture?

Options

- A. Non union of neck of femur fracture
- B. Sacroiliitis
- C. Metastatic lesion left ilium
- D. Dermoid cyst
- E. Avascular necrosis

No.: 86

E

The femoral head is flattened and sclerotic, the recent metalwork is a cause of AVN.





No.: 87



Which of the following is not a possible cause of the findings on the X-ray shown?

Options

- A. Trauma
- B. Osteoporosis
- C. Myeloma
- D. Sick cell disease
- E. Prostate metastasis

No.: 87

D

The above X-ray shows multiple wedge fractures. Sick cell disease tends to cause a central flattening of the vertebral body .

There are multiple wedge fractures of the vertebral bodies shown, causes include :

- \*Osteoporosis
- \*Trauma
- \*Mets/Myeloma (might see in sclerosis)
- \* Histiocytosis



No.: 88



What is the most likely diagnosis you can make out from the X-ray of the hand of a middle-aged woman?

Options

- A. Rheumatoid Arthritis
- B. Psoriatic Arthritis
- C. Gout
- D. Renal Osteodystrophy
- E. Sarcoid

No.: 88

**B**

The above X-ray shows - Pencil-in-cup deformity of 4th MCP .

Psoriasis can also :

- \*mimic RA, AS, mono or oligoarthritis, affect DIPs, arthritis mutilans ,
- \*large joints spared, no osteoporosis, enthesitis (tendon insertion) and periarticular erosions ,
- \*ankylosis (esp IP joints) ,
- \* phalangeal tuft resorption.





No.: 89

A 28-year-old single woman presented to casualty. Her parents were both still living in Ghana, but she had been living in UK for the last year. She had recently returned from a holiday visiting her family. Her mother had undergone recent thyroidectomy. She was a non-smoker. She had noticed that she was more breathless than normal, and reported increasing lethargy and a week's history of aching of her elbows and hands. On examination, she had a temperature of 37.9°C and oxygen saturations of 93% on air. Her right elbow was tender and hot. Her heart sounds were normal. There was reduced air entry at the right lung base and an associated pleural rub. Abdominal examination was unremarkable.

FBC :  
 Hb 9.9  
 MCV 99  
 WCC 3.7  
 Neuts 3.0  
 Pl 305  
 ESR 40  
 Biochem :  
 Na 140  
 K 4.2  
 Urea 11.0  
 Creat 115  
 Bili 55  
 Alk phos 80  
 ALT 30  
 Total calc 2.3  
 CRP 4  
 C3 low  
 ABGs :  
 pH 7.37  
 pO<sub>2</sub> 11.4  
 pCO<sub>2</sub> 4.4  
 Bic 26  
 ECG Normal axis, sinus 85 bpm  
 CXR Blunting of the right costophrenic angle  
 MSU dipstick: Blood + protein □

The most likely diagnosis is :

Options

- A. Pulmonary embolism
- B. Malaria
- C. SLE
- D. Wegener's granulomatosis
- E. HIV seroconversion illness

No.: 89

C  
 SLE

Lupus is more common in women, in Afro-Caribbean and in those with a personal or family history of autoimmune disease.

This is a presentation of multisystem disease, with potentially a hemolytic anemia, leucopenia, arthralgia, pleuro/pericarditis and renal disease possibly glomerulonephritis with renal impairment.

The low complement and phenotype make lupus most likely (Wegener's causes renal and chest disease, but less likely hematological abnormalities, and is more common in Caucasian men).

It is crucial to both prove the diagnosis and investigate its complications, particularly the renal ones as they are potentially life threatening.

Autoantibodies

\*ANA

Seen in 90%+ of lupus patients but ANA are rather non-specific. At low titer in the aging population they can be a finding of no significance.

-Homogeneous SLE/drug induced

-Coarse speckled mixed connective tissue disease

-Fine speckled Sjogrens

-Nucleolar scleroderma/polymyositis.

\*Ds DNA-more specific (around 30 - 70% of SLE patients only): rising titers may herald relapse

\*Anti-histone antibodies are associated with drug-induced lupus

\*ENA extractable nuclear antigens

\*Ro/La - in Sjogrens and SLE (also known as SS1 and SS2)

\*West Indian lupus Sm +

\*RNP (ribonuclear protein)- SLE, MCTD

\*Ribosomal P antibodies, a marker for neuropsychiatric lupus

\*Anti-Scl-70 scleroderma

\*Anti-centromere CREST

\*Anti-Jo1 - Polymyositis/dermatomyositis (particularly respiratory involvement)

\*AMA specific and sensitive for PBC do M2 ELISA

\*ASA chronic autoimmune hepatitis

\*Anti-gliadin (IgA) and anti-endomysial ab Celiac disease

\*P ANCA non-specific; vasculitides, PAN, IBD

\*C ANCA specific for Wegener's granulomatosis: found in 30 - 90% of patients



No.: 90

A 28-year-old single woman presented to casualty. Her parents were both still living in Ghana, but she had been living in UK for the last year. She had recently returned from a holiday visiting her family. Her mother had undergone recent thyroidectomy. She was a non-smoker. She had noticed that she was more breathless than normal, and reported increasing lethargy, and a week's history of aching of her elbows and hands.

On examination, she had a temperature of 37.9 and oxygen saturations of 93% on air. Her right elbow was tender and hot. Her heart sounds were normal. There was reduced air entry at the right lung base, and an associated pleural rub. Abdominal examination was unremarkable.

FBC

Hb 9.9

MCV 99

WCC 3.7

Neuts 3.0

Pl 305

ESR 40

Biochem

Na 140

K 4.2

urea 11.0

creat 115

bili 55

alk phos 80

ALT 30

total calc 2.3

CRP 4

C3 low

ABGs

pH 7.37

pO<sub>2</sub> 11.4pCO<sub>2</sub> 4.4

bic 26

ECG Normal axis, sinus 85 bpm

CXR Blunting of the right costophrenic angle

MSU dipstick Blood + protein □

Pick the most important investigations to confirm your diagnosis.

Options

- A. Blood cultures
- B. Malarial films
- C. A VQ scan
- D. A Coombs test (DAT)

No.: 90

**D**  
SLE

Lupus is more common in women, in Afro-Caribbeans and in those with a personal or family history of autoimmune disease. This is a presentation of multi-system disease, with potentially a haemolytic anaemia, leucopaenia, arthralgia, pleuro/pericarditis and renal disease possibly glomerulonephritis with renal impairment. The low complement and phenotype make lupus most likely (Wegener's causes renal and chest disease, but less likely haematological abnormalities and is more common in Caucasian men). It is crucial to both prove the diagnosis, and investigate its complications, particularly the renal ones as they are potentially life threatening.

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\*ENA - extractable nuclear antigens

\*Ro/La - in Sjogrens and SLE (also known as SS1 and SS2)

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\*Anti-centromere - CREST

\*Anti Jo1- polymyositis/ dermatomyositis (particularly respiratory involvement)

\*AMA - specific and sensitive for PBC do M2 ELISA

\*ASA - chronic autoimmune hepatitis

\*Anti gliadin (IgA) and antiendomysial ab coeliac disease

\*P ANCA - non-specific; vasculitides, PAN, IBD

\*C ANCA - specific for Wegener's granulomatosis: found in 30-90% of patients





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Full blood count (FBC) :

Hemoglobin (Hb) 9.9

Mean corpuscular volume (MCV) 99

White cell count (WCC) 3.7

Neuts 3.0

Platelets (PI) 305

Erythrocyte sedimentation rate (ESR) 40

Biochem :

Na 140

K 4.2

Urea 11.0

Creat 115

Bilirubin 55

Alkaline phosphatase (alk phos) 80

Alanine amino transferase (ALT) 30

Total calc. 2.3

C-reactive protein (CRP) 4

C3 Low

Arterial blood gases (ABGs) pH 7.37, pO<sub>2</sub> 11.4, pCO<sub>2</sub> 4.4, bic 26

Echocardiogram (ECG) Normal axis, sinus 85 bpm

Chest X-ray (CXR) Blunting of the right costophrenic angle

MSU Dipstick Blood + protein □

Pick the most important investigations to confirm your diagnosis :

Options

A. Anti-nuclear antibodies (ANA)

B. Lupus anticoagulant

C. A renal biopsy

No.: 91

A

Systemic lupus erythematosus (SLE):

Lupus is more common in women, in afro-caribbeans and in those with a personal or family history of autoimmune disease. This is a presentation of multisystem disease, with potentially a haemolytic anaemia, leucopaenia, arthralgia, pleuro/pericarditis and renal disease possibly glomerulonephritis with renal impairment. The low complement and phenotype make lupus most likely (Wegener's causes renal and chest disease, but less likely haematological abnormalities and is more common in Caucasian men). It is crucial to both prove the diagnosis, and investigate its complications, particularly the renal ones as they are potentially life-threatening.

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Anti Scl-70	scleroderma
Anti-centromere	CREST
Anti Jo1	polymyositis/dermatomyositis (particularly respiratory involvement)
AMA	specific and sensitive for PBC do M2 ELISA
ASA	chronic autoimmune hepatitis
Anti gliadin (IgA) and antiendomysial ab	coeliac disease
P ANCA	non-specific; vasculitides, PAN, IBD
C ANCA	specific for Wegeners granulomatosis: found in 30-90% of patients



No.: 92

An 84-year-old gentleman was found on the floor of his hallway by police, after a neighbor raised the alarm when his milk had not been taken in. On assessment in casualty, his GCS was 11/15, and he had a dense right hemiparesis. He was dehydrated. He smelt of urine .

His results are as follows :

Na 147

K 7.9

Bic 21

Urea 19

Creat 240

Glu 7.5

Calcium (total) 1.68

Phosphate 1.8

Bili 11

Alk phos 164

Albumin 37

Glu 9

WCC 12.3

Hb 13.9

Pl 366

Urine +++Blood +protein

CXR Unremarkable

Urine microscopy No WBC. No RBCs. No organisms seen .

What further test would best confirm the cause of the biochemical abnormalities?

Options

A. Serum osmolality

B. Renal and pelvic ultrasound

C. Creatine kinase level

D. Urine culture for atypical organisms

E. Urine myoglobin level

No.: 92

NOT AVAILABLE

Rhabdomyolysis causes a high CK, but this may be high anyway in view of his fall, so a urine myoglobin is more helpful. Presence of urine myoglobin will cause a false positive urine dipstick to blood. Rehydration and maintaining a good urine output is critical while CK remains high to prevent renal function deteriorating further. There are a number of other causes of myositis causing a high CK- autoimmune e.g .




- \*associated with SLE (associated with Jo-1 antibodies) ,
- \*dermatomyositis/polymyositis ,
- \*inclusion body myositis (causes peripheral weakness
- may not respond to steroids) ,
- \*sarcoid ,
- \*drug-related (e.g. statin), and
- \*post-bone marrow transplant .

EMG and muscle biopsy are usually required to confirm and differentiate.



<p>No.: 93</p> <p>A 64-year-old woman presents with bony swellings of the distal interphalangeal (DIP) joints on both hands. They were initially painful but are now painless .</p> <p>The most likely diagnosis is:</p> <p>Options</p> <p>A. Bouchard's nodes B. Gouty Tophi C. Rheumatoid nodules D. Heberden's nodes E. Xanthomata</p>	<p>No.: 93</p> <p><b>D</b></p> <p>In a 64-year-old with bony swellings on the finger joints the most likely diagnosis is osteoarthritis. At the DIP joints these are Heberden's nodes at the PIP joints Bouchard's nodes. They are commonly painful initially but then become painless. Gouty tophi are rarely painful and lie over tendons rather than joints. Rheumatoid nodules would be uncommon over the DIP joints.</p>
<p>No.: 94</p> <p>A 38-year-old man presents with pain in the hips and hands. He has loss of joint space and subchondral sclerosis on x-ray of the 2nd and 3rd metacarpophalangeal (MCP) joints of both hands. The most likely underlying condition is:</p> <p>Options</p> <p>A. Haemochromatosis B. Rheumatoid arthritis C. Onchrosis D. Spondyloepithelial dysplasia E. Acromegaly</p>	<p>No.: 94</p> <p><b>A</b></p> <p>Loss of joint space and subchondral sclerosis are pathognomic of osteoarthritis on x-ray .</p> <p>All of these conditions can be underlying causes of osteoarthritis particularly in young people. Haemochromatosis and Wilson's disease classically involve the 2nd and 3rd MCP joints.</p>
<p>No.: 95</p> <p>A tearful 24-year-old woman presents to your clinic with "joint pains". There is no synovitis and she has multiple tender points including over the supraspinatus, lower cervical spine, lateral epicondyle of the elbows and greater trochanters. Which investigation do you not need to send:</p> <p>Options</p> <p>A. TFTs B. FBC/ESR C. ANA D. Anti DS DNA E. Calcium and alkaline phosphatase</p>	<p>No.: 95</p> <p><b>D</b></p> <p>She has classical symptoms of fibromyalgia. Investigation should aim to exclude thyroid abnormalities, vitamin D deficiency, inflammation and systemic lupus erythematosus (SLE). Anti DS DNA antibodies are very specific but not sensitive so they are not useful as a screening test.</p>



<p>No.: 96</p> <p>A 31-year-old woman with an 8-month-old baby presents with pain in the wrist. The pain is centred over the radial styloid and is increased by abduction of the thumb against resistance. What is the most likely diagnosis:</p> <p>Options</p> <p>A. Carpal tunnel syndrome B. Gout C. 1st CMC joint osteoarthritis D. De Quervain's tenosynovitis E. Early rheumatoid arthritis (RA)</p>	<p>No.: 96</p> <p><b>D</b></p> <p>The pain in the thumb on resisted abduction is typical of De Quervain's. She is young for fist CMC joint osteoarthritis (OA) and the pain of that condition is typically more distal. Premenopausal women are unlikely to develop gout. Carpal tunnel syndrome is common in pregnancy but usually resolves postpartum.</p>
<p>No.: 97</p>   	<p>No.: 97</p> <p><b>D</b></p>
<p>No.: 98</p> <p>A 30-year-old woman with established SLE presents to clinic increasingly unwell. Which of the following blood tests suggests active lupus?</p> <p>Options</p> <p>A. High titre ANA B. Raised CRP C. Increased anti-ds DNA titer D. Increased C4 level E. Anti-Sm antibodies</p>	<p>No.: 98</p> <p><b>C</b></p> <p>Increased double stranded DNA antibodies often predict a flare of lupus, as do reduced complement levels .</p> <p>ANA titer does not reflect disease activity .</p> <p>Raised CRP levels tend to represent infection (can be raised in serositis) .</p> <p>The presence of anti-Sm antibodies predicts renal disease but does not change with disease activity.</p>



No.: 99



What is the likely cause of the abnormality shown here?

Options

- A. Neuropathic joint
- B. Haemophilia
- C. Rheumatoid arthritis
- D. Septic arthritis
- E. Paget's disease

No.: 99

A

\*Also known as Charcot joint. Hallmarks: Grossly disorganised, new bone/callus formation, subluxation/dislocations. Early on can look like OA with a joint effusion, then fragmentation of articular surface .

\* Causes: DM (foot), Steroid Rx (hip and knee), Syringomyelia (upper limb), Tabes Dorsalis (knee, hip, ankle), Leprosy (hands, lower limb), Chronic alcohol (feet).



No.: 100



What is the cause of this man's bone pain?

Options

- A. Osteomyelitis
- B. Sclerotic bone metastases
- C. Paget's disease
- D. HPOA
- E. Lymphoma

No.: 100

C

Increased bony size and trabeculae coarsening that starts at the end of the bone indicates Paget's disease.



No.: 101



What is the diagnosis that can be inferred from the X-ray?

Options

- A. Ochronosis
- B. ♦Rugger-Jersey♦ spine of renal
- C. Ankylosing spondylitis
- D. Osteomalacia
- E. DISH (Diffuse Idiopathic Skeletal Hyperostosis)

No.: 101

C

Ankylosing Spondylitis shows following features on X-ray :

Squaring of ant vert margins, syndesmophytes  
♦bamboo spine♦ disk calcif (nucleus pulposus). SIJ affected first, then spine .

Causes of disk calc :

- \*ochronosis/alkaptonuria (annulus fibrosis)
- \*Ca pyrophosphate deposition disease (annulus fibrosis)
- \*Gout
- \*Haemachromatosis
- \*DISH - can mimic AS
- \* JCA

No.: 102



What is the abnormality seen in this woman with bone pain?

Options

- A. Subperiosteal resorption of HPTH (Hyperparathyroidism)
- B. HPOA (Hypertrophic Osteoarthropathy)
- C. AVN (Avascular necrosis) talus
- D. Myelomatous deposit
- E. Osteopetrosis

No.: 102

B

HPOA - periosteal reaction along distal long bones .

Causes :

\*Chest: CA bronchus, lymphoma, abscess, bronchiectasis, metastasis

\*Pleural: fibroma or mesothelioma

\*CVS: Cyanotic congen heart disease

\*GIT: IBD, dysentery, lymphoma, Whipples, coeliac, cirrhosis esp PBC

Subperiosteal resorption - HPTH





No.: 103



What is the most likely diagnosis that can be inferred from the X-ray shown?

Options

- A. AVN femoral head
- B. Osteomalacia, Looser ♦s zone
- C. Rickets
- D. Subperiosteal resorption, HPTH
- E. Thalassaemia

No.: 103

B

The X-ray of the hip shows Looser ♦s zones commonly seen as a radiological finding in Osteomalacia and (less commonly) in Rickets .

Other features of Looser ♦s zone :

- .1 narrow lucency
- .2 perpendicular to bone cortex
- .3 stress fracture common (normal stress, abnormal bone)
- .4 asymmetrical/bilateral
- .5 neck of femur/pubis rami/scapulae/lower ribs

No.: 104



Which of the following is not a possible cause of the obvious finding on the X-ray shown?

Options

- A. Psoriatic Arthropathy
- B. Ankylosing Spondylitis
- C. SLE (Systemic lupus erythematosus)
- D. Dermatomyositis
- E. RA (Rheumatoid arthritis)

No.: 104

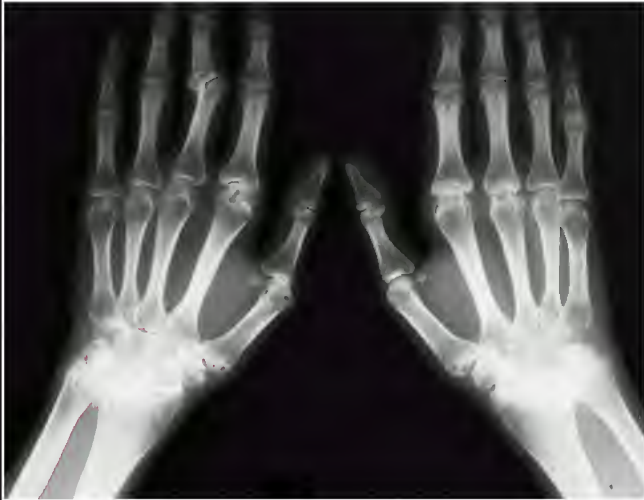
D

Atlanto-axial subluxation, which is shown on the X-ray  
Posterior aspect of C1 (atlas) and anterior aspect of peg/C2 (axis) >3 mm

Causes :

- \*Trauma
- \*Arthritis: RA (this case), Psoriatic, JCA (Juvenile arthritis), SLE, Ankylosing Spondylitis
- \* Congenital: Downs, Morquios

No.: 105



What is the most likely diagnosis inferred from the X-ray?

Options

- A. Rheumatoid Arthritis
- B. Gout
- C. SLE (Systemic lupus erythematosus)
- D. Psoriatic Arthritis
- E. Pseudogout

No.: 105

A

\*Periarticular osteopenia (not found in psoriatic arthritis)

\*Carpal bones most affected

\*Erosions, loss of joint space

\*Symmetrical

\*Not DIPs



No.: 106



Which of the following is the most likely cause of the following radiological findings?

Options

- A. Diabetes
- B. Pseudogout
- C. Hypoparathyroidism
- D. Renal osteodystrophy
- E. Rheumatoid Arthritis

No.: 106

D

Secondary and tertiary hyperparathyroidism causes vascular calcification .

Diabetes also causes vascular calcification, more commonly seen in the foot .





No.: 107



What is the cause of the radiological findings on the X-ray?

Options

- A. RA (Rheumatoid arthritis)
- B. Psoriatic Arthritis
- C. Ankylosing Spondylitis
- D. Pseudogout (CPPD)
- E. Gout

No.: 107

E





No.: 108

A 32-year-old woman presents to A&E with a hot swollen ankle. This had come on 3 weeks after return from a walking holiday in Vermont, USA. While on holiday she had been well, except for a circular rash on her leg, for which she had self-medicated with amoxycillin for 1 week, thinking that it was an infected bite. She had no previous medical history other than mild psoriasis. Her grandmother had suffered from rheumatoid arthritis. She had had a flu-like illness with swollen glands one week previously. On examination she was afebrile. She had no evidence of lymphadenopathy or rash, and ENT examination was normal. Her pulse was 55, BP 120/85. Her heart sounds were normal. The ankle was hot and tender, with reduced range of movement. Other joint examination was normal. Neurological examination was normal. ESR 46, CRP 50, U&E and FBC normal, X ray ankle - no abnormality detected.

Your next investigation would include :

Options Choose 2

- A. Aspirate of right ankle for microscopy and culture
- B. Throat swab
- C. Serum urate
- D. CXR
- E. ECG
- F. An ASO titre

No.: 108

A E

Lyme disease

Lyme disease is a tick-borne infection with the spirochete *Borrelia burgdorferi*. Peak incidence is in summer and during fall in endemic area e.g. Eastern seaboard.

First lesion is an expanding erythematous papule, erythema migrans at the site of tick bites occurs in 60-80% of patients. This is often associated with fatigue, fever, headache, neck stiffness, arthralgias and myalgias.

Musculoskeletal: recurrent brief attacks; may become chronic in one or more joints.

CNS: lymphocytic meningitis, cranial neuritis e.g. facial palsy, rarely encephalomyelitis. Chronically, may develop peripheral neuropathy, sleep disturbance.

Cardiovascular: 2nd-3rd grade AV conduction defects, which may be associated with myocarditis.

Lab Ix include direct detection, or Ig M/G to the spirochete in serum/CSF, with rising titre in convalescent serum. PCR/Western blots may be available.

Treatment regimes include doxycycline in early disease, or amoxycillin/cephalosporins indicated for neurological etc. complications.

No.: 109



A young man presents with lower back pain and early morning stiffness, and pain and swelling of his digits. He has bilateral sacroiliac joint tenderness but negative Schober's test. He has no personal or family history of arthritis.

The most likely diagnosis is:

Options

- A. Psoriatic arthritis
- B. Early rheumatoid arthritis
- C. Osteoarthritis
- D. Sarcoidosis
- E. Ankylosing spondylitis

No.: 109

A

This gentleman has a dactylitis and bilateral sacroiliitis. These are consistent with a diagnosis of a seronegative spondyloarthropathy. Given the negative Schober's test (a test of reduced lumbar spine flexion, generally positive in ankylosing spondylitis), this is most likely to be psoriatic arthritis. In some cases, the arthritis can precede skin changes. Skin disease does not mirror activity of arthritis.



No.: 110

A 63-year-old woman with rheumatoid arthritis presents to your clinic with abnormal liver function on her monitoring blood tests :

Bilirubin 10  
Alk phos 170  
ALT 330  
Gamma GT 420

The most likely drug cause would be :

Options

- A. Hydroxychloroquine
- B. Infliximab
- C. Intramuscular Gold
- D. Sulphasalazine
- E. Paracetamol

No.: 110

D

Hydroxychloroquine, infliximab and gold do not commonly cause abnormal liver function tests. Sulphasalazine is well documented as causing a hepatic picture, which usually resolves with cessation of the drug, and usually occurs early on in therapy.

No.: 111

A young woman with inflammatory arthritis is sent to casualty by her GP. She has been recently commenced on methotrexate therapy and her recent monitoring blood tests showed the following :

Hb 8.9  
WCC 1.2 Neutrophils 0.9 Lymphocytes 0.3  
Pl 170

Her other therapy includes diclofenac and folic acid therapy .

She is well other than a slightly sore throat, and she has a temperature of 37.3. Examination, other than synovitis of MCPJs is unremarkable .

The best single treatment would be :

Options

- A. Oral penicillin V, and omit dose of methotrexate
- B. Stop methotrexate and commence intravenous folinic acid therapy
- C. Stop methotrexate and start sulphasalazine
- D. GM-CSF and isolation
- E. Stop methotrexate and start high dose oral folic acid

No.: 111

B







No.: 112

A 26-year-old man who has returned from a holiday in Ibiza presents to A&E. He has a four-day history of gritty eyes, dysuria and flitting pains affecting his ankles, knees and wrists. He has no past history of note and is taking no medication .

The preferred initial management should be :

Options

- A. Serial stool samples and colonoscopy
- B. Oral prednisolone if blood, urine & synovial fluid cultures negative
- C. Joint aspiration for culture, genito-urinary swabs, and anti-inflammatories
- D. Typing for HLA B27
- E. Injecting painful joints with intra-articular steroid

No.: 112

C

Joint aspiration for culture, genitor-urinary swabs and anti-inflammatories .

This is likely to be Reiter's syndrome (reactive arthritis). Given the history, a related STD infection, such as Chlamydia is likely .

Reiter's syndrome/reactive arthritis

Reiter's syndrome often follows infections with Shigella, salmonella, yersinia, campylobacter, or STDs such as chlamydia, ureaplasma and HIV. Often an organism is not isolated, and may be up to one month prior to the onset of joint symptoms. The classical eye involvement is a conjunctivitis.. Skin lesions include oral ulcers, circinate balanitis (painless), keratoderma blenorrhagicum (pustular psoriasis affecting palms and soles, and hyperkeratosis of the nails.



No.: 113



A 45-year-old man with a history of sinusitis presents unwell to his GP. He has noticed he has been more breathless recently, and has been feeling fatigued. He has had left eye pain in recent months (see picture). On examination he has some mild tenderness of his fingers, and crepitations at his right base. Dipstick urine testing reveals ++blood and ++protein .

Routine bloods show :

Hb 10.3  
WCC 10.0  
Pl 230  
Na 130  
K 4.0  
Urea 12  
Creat 190  
ESR 120  
CRP 32

The most likely diagnosis is :

Options

- A. Polyarteritis nodosa
- B. Relapsing polychondritis
- C. Wegener's granulomatosis
- D. Sarcoidosis
- E. Congenital syphilis

No.: 113

C

The combination of sinusitis, scleritis, fatigue, chest pathology and probable glomerulonephritis are most in keeping with a diagnosis of Wegener's granulomatosis. Polyarteritis nodosa and sarcoidosis are less likely to explain the upper respiratory symptoms. Relapsing polychondritis does not cause a glomerulonephritis .

Wegener's granulomatosis

Wegener's granulomatosis is often referred to as the midline disease, affecting the sinuses and upper airways (cause of subglottic stenosis), eyes and is also a cause of a pulmonary-renal syndrome. Pathologically, it is a medium-sized vessel vasculitis, with evidence of necrotizing granulomas on biopsy. Cytoplasmic ANCA is a specific test, which is also highly sensitive (>90%) in the context of organ involvement. As with all of the vasculitides, non specific symptoms such as fever, malaise, arthralgia and weight loss are common.



No.: 114

A 58-year-old woman of Afro-Caribbean origin presents with a 6 month history of bilateral ankle pain, pain and stiffness in the fingers, and intermittent painful rash over her shins. On examination she has ankle swelling, and bilateral basal fine inspiratory crackles .

The test(s) most likely to be helpful in her further investigation will be :

Options

- A. Biopsy of normal skin
- B. Antinuclear antibodies
- C. Rheumatoid factor
- D. Serum ACE
- E. Chest X ray & pulmonary function tests

No.: 114



No.: 115



A young woman with SLE who works as a landscape gardener presents to you with a troublesome photosensitive rash. She does not take any therapy for her lupus, which is otherwise quiescent. She is trying to become pregnant .

The most appropriate first line treatment is :

Options

- A. Oral hydroxychloroquine
- B. Oral dapsone
- C. Topical sunblock
- D. Low dose aspirin
- E. Low dose oral prednisolone

No.: 115

C

Although hydroxychloroquine may be effective, it is relatively contraindicated in pregnancy, causing cleft lip and palate. It may still be continued if the systemic disease is felt to be active. Remember that SLE can flare in pregnancy.





No.: 116



A 60-year-old woman with history of right mastectomy for breast cancer presents with a 2 week history of malaise and weakness. She has lost weight. On examination she has a facial rash, and proximal muscle weakness, arms 3/5 bilaterally and legs 4/5 bilaterally. Rest of neurological examination revealed no abnormality. There was no muscle tenderness or swelling. Chest examination is unremarkable other than right axillary lymphadenopathy .

Initial investigations show :

Hb 9.9

WCC 7.0

Pl 230

ESR 72

CRP <5

U&E normal

Bili 8

ALT 90

Alk phos 170

The next investigation most likely to be diagnostic is :

Options

- A. Temporal artery biopsy
- B. Serum creatine kinase
- C. Anti-neuronal antibodies
- D. Chest X ray
- E. Anti Jo-1 antibodies

No.: 116

B

This patient has dermatomyositis. The picture shows evidence of Gottron's papules and nail fold erythema. Her ALT is likely to be elevated because of high muscle enzymes, and her CK is likely to be in the 1000s. Anti-Jo1 is only likely to be positive in 30% of patients, and is therefore not as useful as CK diagnostically. A higher proportion of patients will be ANA positive. To confirm a diagnosis of myositis, an EMG and muscle biopsy are required, and many patients also benefit from MRI thighs/arms, as the disease can be patchy, and imaging can help in biopsy planning. Although the association with malignancy is probably weaker than previously thought, the history of previous malignancy, weight loss and lymphadenopathy in this case warrants careful screening for recurrence or a new primary.

No.: 117



An intravenous drug user presents to A&E with a painful finger. He also complains of numb fingers and intermittent joint pains. He is afebrile and his peripheral pulses are present. He has a non-blanching purple rash over his limbs (see below). His heart sounds are normal. Na 145 K 3.6 urea 5.0 creat 90 CRP <5 ESR 65. Echocardiography shows normal valves with no vegetations, and serial blood cultures and PCR for meningococcus are negative.

The next most useful investigation would be :

Options

- A. Serum cold agglutinins
- B. Serum cryoglobulins
- C. Upper limb arteriography
- D. Serum complement
- E. Hand X ray

No.: 117

B

This patient is likely to be hepatitis C positive, which is associated with mixed cryoglobulinaemia. This can present with raynaud's, arthralgia, palpable purpuric rashes and digital infarcts.



No.: 118

A 24-year-old woman presents with arthralgia and rash over her thighs. She is on no medication. She has a previous history of axillary vein thrombosis .

Hb 13.0

Pl 102

WCC 4.3

PT 12.0

APTT 66

The likely diagnosis is :

Options

A. Autoimmune thrombocytopaenia

B. SLE

C. Cutaneous lupus

D. Antiphospholipid syndrome (Hughes ♦ syndrome)

E. Autoimmune cryoglobulinaemia

No.: 118

D

Livedo reticularis which is the classical cutaneous manifestation is shown. This, the prolonged APTT, thrombocytopaenia and previous thrombosis are suggestive of the syndrome. Arthralgia and headaches can be a feature of primary antiphospholipid syndrome as well as SLE .

Antiphospholipid syndrome

Lifelong warfarinisation would only be considered following evidence of thrombotic disease, and the usual first line treatment is aspirin. The lupus inhibitor test (or lupus anticoagulant test) ♦ unlike serum from a patient with haemophilia, the prolonged APTT does not correct with addition of normal plasma. Anticardiolipin antibodies, either IgG (more specific) or IgM are also associated with the diseases. They are strongly associated with fetal loss, whether or not the disease is felt to be active.



No.: 119

A 50-year-old woman with known rheumatoid arthritis (RA) presents to clinic, with a 2-month history of increasing breathlessness on exertion. She had received gold injections for many years, but had found she still had to take regular diclofenac for joint swelling. She had early morning stiffness lasting about an hour. She was on no other therapy. She had no history of cough, sputum or wheeze. She described ankle swelling over the preceding 6 weeks. She had no other medical history .

On examination of her hands, she had evidence of a symmetrical deforming arthropathy. There was no evidence of rash. Pulse was 80 regular, BP 130/80 mm Hg and her jugular venous pressure (JVP) was not raised. She had evidence of pitting oedema to her mid thigh. She had fine end-inspiratory crackles at both bases. On examination of the abdomen there was a spleen tip palpable. There was no ascites .

Hemoglobin (Hb) 8.0  
Mean corpuscular volume (MCV) 81  
White cell counts (WCC) 2.5  
Platelets (Pl) 100  
Na 137  
K 3.8  
Urea 8  
Creatinine (Creat) 130  
Rheumatoid factor (RF) 1/1240  
Chest X-ray (CXR) normal  
Pulmonary function tests (PFTs) FEV1 1.8; FVC 2.1; TLC 65%  
Albumin (Alb) 26  
Bili 9  
Alkaline phosphatase (Alk phos) 80  
Aspartate aminotransferase (AST) 32  
IgG 23 Serum EP ♦ no paraprotein  
IgM 1.4  
IgA 2  
Erythrocyte sedimentary rate (ESR) 65  
Antinuclear antibody (ANA) 1/640  
Urine dipstick protein+++, Blood nil

The most likely explanation for both her full blood count abnormalities and peripheral oedema would be :

Options

- A. Active rheumatoid disease
- B. Felty ♦s syndrome
- C. Non-steroidal anti-inflammatory drug (NSAID) therapy
- D. Gold therapy
- E. Amyloidosis

No.: 119







No.: 120

A 72-year-old lady presents to A&E with a 1-week history of severe headache over her right brow. She gives a history of jaw ache while chewing food. She gives no history of visual abnormalities. On examination she is tender over her right temporal artery and scalp. She has some tenderness over her proximal muscles and difficulty lifting her arms above her head, although muscle power is normal. She has nail fold erythema but no rash.

Haemoglobin (Hb) 9.3

Mean corpuscular volume (MCV) 90

White cell count (WCC) 7.5

Platelets (Pl) 540

C-reactive protein (CRP) 35

Erythrocyte sedimentation rate (ESR) 87

Chest X-ray (CXR) no abnormality

The likely diagnosis is :

Options

- A. Temporal arteritis
- B. Polymyalgia rheumatica (PMR)
- C. Temporal arteritis and PMR
- D. Polymyositis
- E. Dermatomyositis

No.: 120

A

Giant cell arteritis :

Large-sized vessel vasculitis, which encompasses both temporal arteritis and polymyalgia rheumatica. Temporal arteritis patients will usually have polymyalgic symptoms and it should be thought of as a spectrum of the same disease. Its symptoms include jaw claudication, amaurosis fugax and potentially visual loss if there is involvement of the central retinal artery. Uncommon in those under 55. Predominantly women affected. Morning stiffness affecting the girdle, and systemic symptoms such as weight loss, malaise and fever are common. It can be associated with a symmetrical peripheral arthritis. Malignancy should be considered. The ESR is nearly always elevated and the creatine kinase (CK) normal. A high CK would be more suggestive of myositis.





No.: 121

A 32-year-old woman presents to Accident and Emergency department (A&E) with a right hot, swollen ankle. This had come on 3 weeks after return from a walking holiday in Vermont, USA. Whilst on holiday she had been well, except for a circular rash on her leg, for which she had self-medicated with amoxicillin for 1 week, thinking that it was an infected bite. She had no previous medical history other than mild psoriasis. Her grandmother had suffered from rheumatoid arthritis. She had had a flu-like illness with swollen glands one week previously. On examination she was afebrile. She had no evidence of lymphadenopathy or rash, and ENT examination was normal. Her pulse was 55, BP 120/85. Her heart sounds were normal. The ankle was hot and tender, with reduced range of movement. Other joint examination was normal. Neurological examination was normal.

Erythrocyte sedimentation rate (ESR) 46  
C-reactive protein (CRP) 50  
U&E and full blood count (FBC) normal  
X ray right ankle no abnormality detected

The next most important investigations in defining acute management would be :

Options

- A. An autoantibody screen
- B. An antistreptolysin (ASO) titre & throat swab
- C. Aspirate of right ankle for microscopy & culture and an electrocardiogram (ECG)
- D. *Borrelia burgdorferi* serology & blood cultures
- E. X-ray sacroiliac joints & hand X-rays

No.: 121

C

In any monoarthritis, a bacterial septic arthritis should be excluded by aspiration of synovial fluid for urgent gram stain and culture (most common organisms are *Staphylococcus* and *Streptococcus*), and increasingly routinely acid fast bacilli smears. However, the main concern in this case is Lyme disease, given the history of travel to the Eastern seaboard, and a rash suggestive of erythema chronicum migrans. *Borrelia burgdorferi* serology will take many weeks to come back from a reference lab, and given her bradycardia, it is more pertinent to exclude a cardiac conduction defect.

Lyme disease :

A tick-borne infection with the spirochete *Borrelia burgdorferi*. Peak incidence in summer and fall in endemic area e.g Eastern seaboard. First lesion is an expanding erythematous papule, erythema migrans at the site of tick bites ♦ occurs in 60%♦80% of patients. This is often associated with fatigue, fever, headache, neck stiffness, arthralgias and myalgias.

Musculoskeletal: recurrent brief attacks; may become chronic in one or more joints. Central nervous system (CNS): lymphocytic meningitis, cranial neuritis e.g. facial palsy, rarely encephalomyelitis. Chronically, may develop peripheral neuropathy, sleep disturbance. Cardiovascular: 2nd♦3rd grade atrioventricular (AV) conduction defects, which may be associated with myocarditis. Lab Ix include direct detection, or Ig M/G to the spirochete in serum/cerebrospinal fluid (CSF), with rising titre in convalescent serum. PCRs/western blots may be available. Treatment regimes include doxycycline in early disease, or amoxycillin/cephalosporins indicated for neurologic etc., complications.



No.: 122

A 32-year-old Portuguese man presents to clinic with a 3-year history of lower back pain, which has worsened in the last year since he had stopped working as a cleaner on health grounds. His only background history is of psoriasis. He reports some breathlessness on exertion on systemic enquiry, and intermittent eye redness and pain.

On examination he had evidence of synovitis of his metacarpophalangeal (MCP) joints, and loss of his lumbar lordosis. He had reduced flexion of his spine, and markedly restricted movements of his cervical spine. His sacroiliac joints were tender bilaterally. Straight leg rising was painful at 60 degrees bilaterally, but with no radiation of pain down his legs. His chest was clear, and heart sounds were faint but normal.

C-reactive protein (CRP) 40  
Haemoglobin (Hb) 11.1  
White cell counts (WCC) 4.5  
Platelets (Pl) 160  
Na 140  
K 3.7  
Urea 6  
Creatine 105  
ECG SR 90

Posterior anterior chest X-ray (PA CXR) apical shadowing bilaterally. Enlarged cardiac silhouette.

X-ray L spine and sacroiliac joints flowing syndesmophytes T12-L2. Bilateral sacroiliitis, grade 2.

The next most important investigation(s) to help determine immediate management should be:

Options

- A. HLA B27
- B. X-ray thoracic spine & erythrocyte sedimentation rate (ESR)
- C. Echocardiogram & computerized tomography (CT) thorax
- D. Pulmonary function tests & 24 h tape
- E. Early morning urine sampling and blood cultures for mycobacteria

No.: 122

C

Ankylosing spondylitis:

An inflammatory arthritis with a particular predilection for the axial skeleton, nearly always causing a bilateral sacroiliitis. Affects three times as many men as women (although women potentially under-diagnosed). First-line treatment involves non-steroidal anti-inflammatory drugs (NSAIDs) and physiotherapy. A symmetrical or asymmetrical peripheral arthritis may be present, and these patients may respond to conventional disease-modifying anti-rheumatic drugs (DMARDs) such as methotrexate. A uveitis occurs in 20-40% of patients, and does not reflect disease activity, and conjunctivitis may occur. Other cardiac complications other than atrioventricular (AV) conduction defects include an ascending aortitis, aortic regurgitation (AR) and a cardiomyopathy (the concern here). Fibrosis if it occurs classically affects the apices, and can be colonised by aspergillus. The association with HLA B27 is extremely strong, with in excess of 95% of individuals carrying this allele. It is only used in cases where the clinical diagnosis is in doubt. High CRP may reflect disease more than high ESR. X-ray changes are classical, with erosions and sclerosis of the sacroiliac (SI) joints, squaring or romanus lesions of the vertebrae, with syndesmophytes causing bridging and ultimately fusion a bamboo spine. Anti-TNF therapy has recently been licensed for use in aggressive disease, unresponsive to conventional therapy.





No.: 123

A 23-year-old woman with systemic lupus erythematosus (SLE) who previously lived in India, reports breathlessness on exertion for 1 week, associated with dry cough. She has recently received iv methylprednisolone following deteriorating renal function, and has subsequently been taking oral prednisolone and azathioprine. She does not smoke, and has not travelled abroad for 5 years .

On examination, pulse was 100, BP 120/70. She was sweaty, with temperature 37.7 °C, with a malar rash and no evidence of lymphadenopathy. Her chest was wheezy through out with occasional crackles. There was no evidence of asymmetric calf swelling .

Haemoglobin (Hb) 12.0

White cell count (WCC) 5.6

Platelets (Pl) 300

Erythrocyte sedimentation rate (ESR) 61

Na 146

K 5.0

Urea 10.1

Creatine 204 (195 one week previously)

C-reactive protein (CRP) 142

PO2 11.1

CO2 4.1

pH 7.4

Bic 23

Salts 97%

ECG SR 110 right axis deviation

CXR left upper zone cavitating lesion 4 cm in diameter

Blood cultures no growth

Autoantibody screen :

ANA (Antinuclear antibody) 1/640

Ds DNA &gt;200

Ro + La + RHF 1/640

Anti-cardiolipin IgM Negative

The most likely cause of her breathlessness is :

Options

A. PE

B. Fungal infection

C. SLE involvement of lung

D. Pulmonary tuberculosis

E. Wegeners granulomatosis

No.: 123

D

Respiratory involvement in SLE include pleuritis, and pleural effusion, shrinking lung syndrome, interstitial lung disease (NSIP), cryptogenic organising pneumonia, cricoarytenoid involvement, acute pneumonitis, vasculitis, pulmonary oedema, PE and bronchiectasis. However, infection is the most common cause of respiratory symptoms in this patient group. This patient has lived previously in an area endemic for tuberculosis (TB), and has been recently heavily immuno-suppressed, increasing vastly the chances of mycobacterial reactivation or new infection. Fungal infection in this context would normally be associated with a more grave clinical picture. SLE involvement of the lung causing cavitation would be far rarer, and would be a diagnosis of exclusion.

Autoantibodies

Antinuclear antibody (ANA):

All of them in lupus	Non-specific
Homogeneous	SLE/drug induced
Coarse speckled	Mixed connective tissue disorder (MCTD)
Fine speckled	Sjogrens
Nucleolar	SS/polymyositis
Ds DNA	More specific ♦ rising titres may herald relapse
Ro/La	In Sjogrens and SLE
West Indian lupus	Sm +
Ribosomal antibodies	P A marker for neuropsychiatric lupus
Anti-Scl70	Scleroderma
Anti-centromere	CREST (Calcinosis, Raynaud's, Esophagus, Sclerodactyly and Telangiectasia)
Anti-Jo1	Polymyositis/dermatomyositis (particularly respiratory involvement)
AMA	Specific and sensitive for PBC ♦ do M2 ELISA (Enzyme Linked Immunosorbent Assay)
ASA	Chronic autoimmune hepatitis
Anti-gliadin (IgA) and anti-endomysial ab	Coeliac disease
P-ANCA (Perinuclear anti-neutrophilic cytoplasmic antibody)	Non-specific; vasculitides, inflammatory bowel disease (IBD)
c-ANCA	Specific for Wegeners granulomatosis





No.: 124

A 28-year-old single woman presented to casualty. Her parents were both still living in Ghana, but she had been living in UK for the last year. She had recently returned from a holiday visiting her family. Her mother had undergone recent thyroidectomy. She was a non-smoker. She had noticed that she was more breathless than normal, and reported increasing lethargy, and a week's history of aching of her elbows and hands. On examination, she had a temperature of 37.9 °C and oxygen saturations of 93% on air. Her right elbow was tender and hot. Her heart sounds were normal. There was reduced air entry at the right lung base, and an associated pleural rub. Abdominal examination was unremarkable.

Haemoglobin (Hb) 9.9  
 Mean corpuscular volume (MCV) 99  
 White cell counts (WCC) 3.7  
 Neutrophils (Neuts) 3.0  
 Platelets (Pl) 305  
 Erythrocyte sedimentation rate (ESR) 40  
 Na 140  
 K 4.2  
 Urea 11.0  
 Creat 115  
 Bili 55  
 Alk phos 80  
 Alanine transferase (ALT) 30  
 Total calc 2.3  
 C-reactive protein (CRP) 4  
 C3 Low

ABGs  
 pH 7.37  
 pO<sub>2</sub> 11.4  
 pCO<sub>2</sub> 4.4  
 Bic 26  
 ECG Normal axis, sinus rhythm 85 bpm  
 Chest X-ray (CXR) Blunting of the right costophrenic angle  
 Mid stream urine (MSU) dipstick Blood + protein

The best next investigation to confirm the likely diagnosis would be :

Options

- A. Malarial films
- B. Ds DNA antibodies
- C. Anti-nuclear antibodies
- D. A renal biopsy
- E. Paul Bunnell test

No.: 124

This patient has a multisystem disease. The pyrexia, with normal CRP, musculoskeletal symptoms, pleural disease, normocytic (probably haemolytic) anaemia, leucopaenia, complement consumption and renal impairment with probable sediment all point to a connective tissue disease. She is a woman, of African origin, with a family history of autoimmunity. This makes systemic lupus erythematosus (SLE) far more likely than Wegener's, which is more common in men.

Low CRP would go against infection. A PE would not explain all of the features of this woman's illness. Antinuclear antibody would be positive in 95% of those with SLE, although can be seen in a variety of other disorders. Renal biopsy is invasive, and you would probably perform urine microscopy etc first (not listed).





No.: 125

A 24-year-old Kurdish woman presents to casualty. She has a two day history of increasing redness, pain and photophobia affecting her right eye. She has had two previous episodes which have settled with a course of eyedrops. She often feels feverish, and has been losing weight. On examination she has a follicular rash, oral aphthous ulcers and a red eye with evidence of posterior synechiae and pus in the anterior chamber. She has recently seen a genitourinary medicine (GUM) clinic for recurrent painful genital ulceration, a cause for which has not been found. Routine blood tests including full blood count (FBC), urea and electrolytes (U&E) and C-reactive protein (CRP) are normal .

Pick an investigation most likely to confirm the unifying diagnosis :

Options

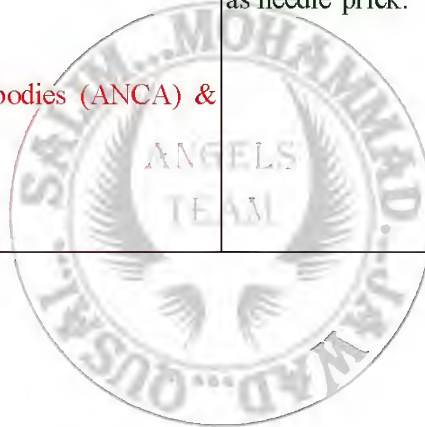
- A. Syphilis serology
- B. Chest X ray
- C. Anti-neutrophilic cytoplasmic antibodies (ANCA) & skin biopsy
- D. Typing for HLA B53
- E. Pathergy skin test

No.: 125

E

Behcet's disease :

This condition predominantly affects men, although women can also be affected. It is particularly seen in countries along the old silk route Turkey, Iran, China and Japan. It is a vasculitis affecting both the large and small blood vessels associated with carriage of HLA B51 in some patients. Characteristic lesions include painful oral and genital ulceration, an anterior or posterior uveitis sometimes causing pus in the anterior chamber (hypopyon), and skin lesions including folliculitis, raised papules or erythema nodosum. Venous and arterial thrombosis and thrombophlebitis are seen. The central nervous system (CNS) may be involved. The diagnosis is based on clinical criteria, which include evidence of pathergy hypersensitivity to trauma, such as needle prick.





No.: 126

A 57-year-old post-menopausal woman with chronic obstructive pulmonary disease (COPD) takes regular courses of high dose prednisolone for exacerbations of her airways disease, more than 4 times per year. She has never taken bone protection, and you request bone densitometry .

Lumbar spine Tscore -2.3

Femoral neck Tscore 2

What therapy would you advise?

Options

- A. Stop smoking, increase dairy products in her diet
- B. Hormone replacement therapy (HRT)
- C. Raloxifene therapy
- D. Oral calcium and vitamin D & repeat bone densitometry in one year
- E. A bisphosphonate and oral calcium and vitamin D therapy

No.: 126

This woman has evidence of osteopaenia (T score  $< -1$ , and  $> -2.5$ ). This is likely secondary to long term steroid use, and therapy should be as per RCP guidelines for bone protection for patients on steroids, i.e., treat if T score  $< -1.5$  and under 65 ([www.rcplondon.ac.uk](http://www.rcplondon.ac.uk)). Bisphosphonates have the best evidence in preventing/treating steroid induced osteoporosis compared with raloxifene or calcium/vitamin D alone. All patients should also receive education on lifestyle advice. HRT is not now used primarily for treating osteoporosis following the Women's Health Initiative (WHI) trial, and should largely be reserved for those who require it for menopausal symptoms .

Osteoporosis = Bone densitometry T score  $< 2.5$

Other secondary causes of osteoporosis :

Hypogonadism, liver (especially cholestatic, e.g., primary biliary cirrhosis (PBC), inflammatory conditions, long-term steroids, hyperthyroidism, hyperparathyroidism, Cushings, vitamin D deficiency.



No.: 127

A 44-year-old patient with rheumatoid arthritis is admitted via Accident and Emergency department (A&E) with a productive cough, cervical lymphadenopathy and signs of right upper lobe consolidation and collapse. This is confirmed on a chest X-ray (CXR). White cell counts (WCC) is 11.6 and full blood count (FBC) is otherwise normal. He is saturating well on 2 litres of oxygen per minute .

He has been self-administering etanercept (Embrel) for the last 18 months twice weekly .

Immediate management should include :

Options

- A. IV antibiotics, and continue etanercept .
- B. IV antibiotics, stop etanercept and start prednisolone 30 mg od .
- C. IV antibiotics, sputum for culture and acid fast bacilli staining and isolate with barrier nursing .
- D. IV antibiotics and volume computed tomography (CT) thorax .
- E. IV antibiotics and high resolution CT thorax.

No.: 127

**C** Etanercept (Embrel) is a subcutaneous injectable form of anti-tumor necrosis factor (anti-TNF) therapy. It is a fully humanised soluble TNF receptor (as opposed to infliximab (Remicade) which is a chimaeric monoclonal antibody to TNF given as an infusion 8 weekly). As with other disease modifying anti-rheumatic drugs (DMARDs) it is immunosuppressive, and should be stopped temporarily during significant infections. Steroid therapy need only be considered subsequently, should there be a disease flare ♦ far lower doses of prednisolone are likely to be adequate. Anti-TNF therapy has a significant association with TB recrudescence, and new TB. For this reason, the British Society for Rheumatology recommends screening prior to therapy. Cases still occur, and given the distribution of the infection and productive cough, this patient should be isolated, and appropriate barrier nursing instituted including masks until this possibility is excluded.



No.: 128



A 59-year-old lady with longstanding severe primary Sjogren's syndrome presents to clinic. She has a history of 6 weeks of increasing malaise and breathlessness, and has lost around 6 kg in weight. On examination she has no palpable lymphadenopathy. She has evidence of a peripheral arthritis. Her chest is clear. She is on prednisolone monotherapy, having stopped azathioprine 6 months previously. She has no evidence of hepatosplenomegaly, and breast examination is normal.

Initial investigations show :

Urea and electrolytes (U&E) Normal  
 Alanine transferase (ALT) 33  
 Alkaline phosphatase (Alk phos) 100  
 Bili 4  
 Haemoglobin (Hb) 10.0  
 White cell counts (WCC) 2.9  
 Platelets (Pl) 100  
 Erythrocyte sedimentation rate (ESR) 100  
 C-reactive protein (CRP) 5  
 IgG 30  
 Dipstick urine No abnormality detected  
 Chest X-ray See below  
 Antinuclear antibody (ANA) 1/640  
 Ro + La + Rheumatoid factor 1/320

The most likely diagnosis is :

Options

- A. Flare of Sjogren's syndrome
- B. New diagnosis of rheumatoid arthritis
- C. Lymphoproliferative disease
- D. Myeloma
- E. Azathioprine toxicity

No.: 128

C

The chest X ray shows bilateral hilar lymphadenopathy, which is not a normal finding in Sjogren's syndrome (however it is seen in sarcoidosis). Weight loss and breathlessness would not be characteristic of a flare of Sjogren's syndrome. Rheumatoid factor and peripheral arthritis are well-recognised features of Sjogren's syndrome, and do not suggest an alternative diagnosis of rheumatoid arthritis (RA), unless a typical erosive arthritis evolved. High IgG is an association with Sjogren's and there is not enough clinical information otherwise to suspect myeloma. The bilateral hilar lymphadenopathy and pancytopenia are most suggestive of a secondary lymphoproliferative disorder. Non-Hodgkin's lymphoma (NHL) is associated with Sjogren's syndrome. There is debate about whether azathioprine causes an increased risk of malignancy. It would certainly not be responsible for new pancytopenia 6 months after the therapy was stopped.

Sjogren's syndrome :

Ro and La are strongly associated with primary Sjogren's syndrome (as opposed to a weaker association with secondary Sjogren's in other connective tissue diseases such as systemic lupus erythematosus (SLE) and RA. Maternal Ro antibody (SS-A) is associated with fetal heart block. Lip biopsy is the preferred histological confirmation, and is required by some diagnostic criteria, although is practically rarely performed, other than in diagnostic dilemma. Interstitial lung disease and amyloidosis are other recognized complications.



No.: 129

A 65-year-old gentleman complains of increasing pain in his knees on stairs, and has evidence of a varus deformity and crepitus on flexion. You confirm evidence of bicompartamental osteoarthritis on plain X-rays .

The initial evidence based management of this gentleman should be :

Options

- A. Simple analgesia and referral to physiotherapy for quadriceps strengthening exercises
- B. Oral non-steroidal anti-inflammatory drugs (NSAIDs)
- C. Chondroitin sulphate tablets
- D. Intra-articular injection of steroid in to both knees
- E. Supplying a walking aid, and referral for knee replacement surgery

No.: 129

C

Glucosamine sulphate at high dose is the nutraceutical with the best evidence base for osteoarthritis (OA) knee (improvement in pain and function 1500 mg per day, RCT in Lancet, 2000). Simple analgesia and referral to physiotherapy for quadriceps strengthening exercises also have evidence to support their use and give improvement in pain and function over time in cohorts of patients. Valgus bracing may also be helpful. Steroid injections may help symptomatically, but only in the short to medium term. These measures should be tried, with escalation of analgesia, prior to referral to orthopaedics.





No.: 130

A 78-year-old woman with a history of ischaemic heart disease and congestive heart failure attends a routine medical outpatient appointment. She was last admitted to hospital with an episode of chest pain and increasing shortness of breath approximately 2 months ago. On discharge her furosemide was increased from 80 mg once daily to twice daily. Her other medications include lisinopril 10 mg once daily, atorvastatin 10 mg nocte, warfarin (usually 2 mg), carvedilol 12.5 mg twice daily and digoxin 125  $\mu$ g once daily.

Her dyspnoea has improved since discharge from hospital although she still has swollen ankles and sleeps on 3-4 pillows at night. Her exercise tolerance is less than 100 m. Over the past few days she has been complaining of a painful right big toe and her general practitioner had started her on oral colchicine. However, after several doses she developed severe diarrhoea and discontinued the drug.

On examination, her jugular venous pressure was measured at 6 cm above her sternal angle, heart rate of 90 beats per minute irregularly irregular, blood pressure 130/76, pan-systolic murmur consistent with mitral regurgitation, lung bases clear and bilateral pitting ankle oedema to mid-calf level. Examination of the right foot revealed a tender, swollen and erythematous first metatarsal phalangeal joint consistent with acute gout.

Her renal function prior to her discharge from hospital a month ago was :

Serum sodium 134 mmol/L  
 Serum potassium 3.8 mmol/L  
 Serum urea 12.1 mmol/L  
 Serum creatinine 189 mmol/L

What would be your treatment of choice for her gout?

Options

- A. Allopurinol
- B. Etoricoxib
- C. Ibuprofen
- D. Paracetamol
- E. Prednisolone

No.: 130

E Allopurinol is not a treatment for acute gout and will only make the situation worse. COX 2 inhibitors are now contra-indicated in ischaemic heart disease. Non-steroidal anti-inflammatory drugs (NSAIDs) should be avoided in both renal and cardiac failure. Paracetamol is unlikely to be anything other than mildly effective. Prednisolone is therefore the treatment of choice although it may increase fluid retention during therapy.





<p>No.: 131</p> <p>A 78-year-old lady is reviewed in the rheumatology clinic. She was diagnosed with polymyalgia rheumatica 18 months previously at which point her erythrocyte sedimentation rate (ESR) had been 60 mm/1 h. She was started on prednisolone 15 mg daily along with calcium and vitamin D supplementation and responded well. However, her symptoms have persistently relapsed when the dose of prednisolone has been reduced below her current dose of 12.5 mg daily .</p> <p>How should her disease be managed?</p> <p>Options</p> <p>A. Continue the current dose of prednisolone          B. Continue the current dose of prednisolone and start methotrexate          C. Continue to taper the prednisolone and treat any symptoms with non-steroidal anti-inflammatory drugs          D. Increase the dose of prednisolone and add a bisphosphonate          E. Stop prednisolone and start azathioprine</p>	<p>No.: 131</p> <p><b>B</b></p> <p>Methotrexate may allow eventual reduction of her steroid dose and thereby help reduce her likelihood of long-term complications of steroid therapy .</p> <p>NSAIDs have no role in disease suppression. Whilst a bisphosphonate should probably be considered for bone protection, increasing her steroids yet, further is neither indicated nor beneficial. Azathioprine is not routinely used in the treatment of progressive muscle relaxation (PMR).</p>
<p>No.: 132</p> <p>A 63-year-old woman with rheumatoid arthritis presents to your clinic with abnormal liver function on her monitoring blood tests :</p> <p>Bilirubin 10          Alkaline phosphatase (Alk phos) 170          Alanine transferase (ALT) 330          Gamma GT 420</p> <p>The most likely drug causes would be (select only two answers) :</p> <p>Options Choose 2</p> <p>A. Hydroxychloroquine          B. Infliximab          C. Intramuscular gold          D. Sulphasalazine          E. Paracetamol          F. Cyclosporin A          G. Methotrexate          H. Prednisolone          I. Penicillamine          J. Etanercept</p>	<p>No.: 132</p> <p><b>D G</b></p> <p>Hydroxychloroquine, infliximab and gold do not commonly cause abnormal liver function tests. Sulphasalazine is well documented as causing a hepatic picture, which usually resolves with cessation of the drug, and usually occurs early on in therapy. Methotrexate can cause a hepatitis, and can also cause hepatic fibrosis (risk of the latter increases with cumulative dose).</p>



No.: 133

A 26-year-old man who has returned from a holiday in Ibiza presents to accident and emergency (A&E). He has a four-day history of gritty eyes, dysuria and flitting pains affecting his feet, ankles and wrists, and has a moderate left knee effusion. He has a rash over the soles of his feet (pictured below). He has no past history of note and is taking no medication .

The preferred initial management should be (select only two answers) :



Options Choose 2

- A. Serial stool samples and colonoscopy
- B. Oral prednisolone if blood, urine and synovial fluid cultures negative
- C. Joint aspiration for culture, genito-urinary swabs, and anti-inflammatories
- D. Typing for HLA B27
- E. Injecting painful large joints with intra-articular steroid once septic arthritis excluded
- F. Requesting rheumatoid factor, anti-nuclear antibodies (ANA) and complement levels
- G. Synovial biopsy for gonococcus
- H. Throat swab and antistreptolysin (ASO) titre
- I. Radioisotope bone scan and plain X-rays of all affected joints
- J. Oral doxycycline

No.: 133

C E

This is likely to be Reiter's syndrome (reactive arthritis). The pustular rash keratoderma blennorrhagica is seen in reactive arthritis and is pictured. Given the history, a related sexually transmitted diseases (STD) infection, such as Chlamydia may be likely. Non-steroidal anti-inflammatory drugs (NSAIDs) are first line therapy, with intra-articular injection of steroid helpful in affected large joints. Oral prednisolone could be used third line in patients who do not respond to these measures. Serial stool cultures may be appropriate in a patient with a history of diarrhoea, but remember that reactive arthritis often presents 2-3 weeks following infection, and the infectious agent responsible is often not isolated at this stage.

No.: 134

A 24-year-old woman presents with arthralgia and rash over her thighs (pictured). She is on no medication. She has a previous history of axillary vein thrombosis .

Haemoglobin (Hb) 13.0

Platelets (Pl) 102

White cell count (WCC) 4.3

Prothrombin time (PT) 12.0

Activated partial thromboplastin time (APTT) 66

The likely diagnosis is (select only two answers) :



Options Choose 2

- A. Systemic lupus erythematosus (SLE)
- B. Autoimmune thrombocytopaenia
- C. Discoid lupus erythematosus
- D. Antiphospholipid syndrome (Hughes' syndrome)
- E. Autoimmune cryoglobulinaemia
- F. Polyarteritis nodosa
- G. Rheumatoid arthritis
- H. Protein C deficiency
- I. Hepatitis C
- J. Takayasu's arteritis

No.: 134

A D

Livedo reticularis is the cutaneous manifestation shown. This, the prolonged APTT, thrombocytopaenia and previous thrombosis are suggestive of the antiphospholipid syndrome. Arthralgia and headaches can be a feature of primary antiphospholipid syndrome as well as SLE. This lady is likely to have either primary antiphospholipid syndrome, or antiphospholipid syndrome secondary to SLE (1/3 of patients with SLE possess anticardiolipin antibodies).





No.: 135

A 50-year-old woman with known rheumatoid arthritis presents to clinic, with a 2 month history of increasing breathlessness on exertion. She has taken gold injections and oral diclofenac for many years and has early morning stiffness lasting about an hour. She has no history of cough, sputum or wheeze. She describes ankle swelling over the preceding 6 weeks .

On examination she has evidence of a symmetrical deforming arthropathy affecting her hands. There was no rash. Pulse was 80 regular, blood pressure (BP) 130/80 and her Jugular venous pressure (JVP) was not raised. She has evidence of pitting oedema to her mid thigh and fine end-inspiratory crackles at both bases. On examination of the abdomen there was a spleen tip palpable .

Haemoglobin (Hb) 8.0

Albumin (alb) 26

Mean corpuscular volume (MCV) 81

Bilirubin (bili) 9

White cell count (WCC) 2.5

Alkaline phosphatase (alk phos) 80

Platelets (Pl) 100

Aspartate aminotransferase (AST) 32

Na 137

IgG 23 Serum EP ♦ no paraprotein

K 3.8

Urea 8

Creat 130

Erythrocyte sedimentation rate (ESR) 65

Rheumatoid factor 1/1240

Antinuclear antibody (ANA) 1/640

Chest X-ray (CXR) normal

Forced expiratory volume in one second (FEV1) 1.8

Forced vital capacity (FVC) 2.1

Transfer factor of the lung for CO (TLCO) 65%

Urine dipstick protein +++ blood nil

What are the most likely explanations for both her results?

Options Choose 3

- A. Active rheumatoid disease
- B. Felty's syndrome
- C. Non-steroidal anti-inflammatory drug (NSAID) therapy
- D. Gold therapy
- E. Myeloma
- F. Lymphoma
- G. Idiopathic thrombocytopenic purpura
- H. Haemolytic anaemia
- I. Amyloidosis
- J. Anaemia of chronic disease

No.: 135

B D I

Gold may cause a pancytopenia, and a membranous glomerulonephritis, leading to a nephrotic syndrome, and associated peripheral oedema. Felty's syndrome and amyloidosis could also explain the blood count abnormality and splenomegaly, although are rarer. Amyloidosis could also cause nephrotic syndrome, and occurs in patients with longstanding usually poorly controlled rheumatoid arthritis (RA). It is rare .

Felty's syndrome is the triad of RA, splenomegaly and leucopaenia. Hypersplenism may also cause anaemia and thrombocytopenia. It usually only occurs in longstanding, deforming RA. Patients often have high titre rheumatoid factor and may also have antinuclear antibodies. Lymphadenopathy, pigmentation and persistent skin ulcers occur. Splenectomy may help neutropaenia, as many disease modifying therapy, steroids and granulocyte-colony stimulating factor (G-CSF). Bacterial infections are common. Granulocyte specific antinuclear antibodies contribute to leucopaenia. There is an increased risk of lymphoproliferative disease in these patients. The condition does not cause peripheral oedema.





No.: 136

A 32-year-old woman presents to accident and emergency (A&E) with a right hot, swollen ankle. This had come on 3 weeks after return from a walking holiday in Vermont, USA. Whilst on holiday she had been well, except for a circular rash on her leg, for which she had self-medicated with amoxicillin for 1 week, thinking that it was an infected bite. She had no previous medical history other than mild psoriasis. Her grandmother had suffered from rheumatoid arthritis. She had a flu-like illness with swollen glands 1 week previously. On examination she was afebrile. She had no evidence of lymphadenopathy or rash and ENT examination was normal. Her pulse was 55, BP 120/85. Her heart sounds were normal. The ankle was hot and tender, with reduced range of movement. Other joint examination was normal. Neurological examination was normal.

Erythrocyte sedimentation rate (ESR) 46

C-reactive protein 50

Urea and electrolytes (U&amp;E) and full blood count (FBC) normal

X ray right ankle no abnormality detected

The four most important investigations in defining management would be :

Options Choose 4

- A. An autoantibody screen
- B. An antistreptolysin (ASO) titre
- C. Blood cultures
- D. Aspirate of right ankle for microscopy and culture
- E. Throat swab
- F. *Borrelia burgdorferi* serology
- G. Electrocardiogram
- H. Chest X ray
- I. Serum urate
- J. X-ray sacroiliac joints and hand X-rays

No.: 136

C D F G

In any monoarthritis, a bacterial septic arthritis should be excluded by aspiration of synovial fluid for urgent gram stain and culture (most common organisms staph and strep), and increasingly routinely acid fast bacilli smears. There may be a bacteraemia, and blood cultures are important, prior to starting antibiotics. However the main concern in this case is Lyme disease, given the history of travel to the Eastern seaboard, and a rash suggestive of erythema chronicum migrans. *Borrelia burgdorferi* serology will take many weeks to come back from a reference lab, and given her bradycardia, it is more pertinent to exclude a cardiac conduction defect.

Lyme disease

A tick-borne infection with the spirochete *Borrelia burgdorferi*. Peak incidence in summer and fall in endemic area, e.g., Eastern seaboard. First lesion is an expanding erythematous papule, erythema migrans at the site of tick bites. Occurs in 60-80% of patients. This is often associated with fatigue, fever, headache, neck stiffness, arthralgias and myalgias. Musculoskeletal: recurrent brief attacks; may become chronic in one or more joints. CNS: lymphocytic meningitis, cranial neuritis, e.g., facial palsy, rarely encephalomyelitis. Chronically, may develop peripheral neuropathy, sleep disturbance. Cardiovascular: second-third grade atrioventricular (AV) conduction defects, which may be associated with myocarditis. Lab Ix include direct detection, or Ig M/G to the spirochete in serum/cerebrospinal fluid (CSF), with rising titre in convalescent serum. polymerase chain reactions (PCRs)/western blots may be available. Treatment regimes include doxycycline in early disease, or amoxycillin/cephalosporins indicated for neurologic etc complications.





No.: 137

A 28-year-old single woman presented to casualty. Her parents were both still living in Ghana, but she had been living in UK for the last year. She had recently returned from a holiday visiting her family. Her mother had undergone recent thyroidectomy. She was a non-smoker. She had noticed that she was more breathless than normal, and reported increasing lethargy, and a week's history of aching of her elbows and hands. On examination, she had a temperature of 37.9°C and oxygen saturations of 93% on air. Her right elbow was tender and hot. Her heart sounds were normal. There was reduced air entry at the right lung base, and an associated pleural rub. Abdominal examination was unremarkable.

Haemoglobin (Hb) 9.9

Mean corpuscular volume (MCV) 99

White cell count (WCC) 3.7

Neuts 3.0

Platelets (Pl) 305

Erythrocyte sedimentation rate (ESR) 40

Na 140

K 4.2

Urea 11.0

Creatinine 115

Bilirubin (bili) 55

Alkaline phosphatase (alk phos) 80

Alanine transferase (ALT) 30

Total calc 2.3

C-reactive protein (CRP) 4

C3 low

Arterial blood gas (ABGs) pH 7.37, pO<sub>2</sub> 11.4, pCO<sub>2</sub> 4.4, bic 26

Electrocardiogram (ECG) normal axis, sinus rhythm 85

Chest X-ray (CXR) blunting of the right costophrenic angle

Mid-stream urine (MSU) dipstick blood + protein □

Pick the next two investigations you would carry out to confirm the likely diagnosis :

Options Choose 2

A. Blood cultures

B. Malarial films

C. A ventilation perfusion (VQ) scan

D. A Coomb's test (DAT)

E. Anti-nuclear antibodies

F. Lupus anticoagulant

G. A renal biopsy

H. Paul Bunnell test

I. Human immunodeficiency virus (HIV) serology

J. Mycoplasma serology

No.: 137

D E

This patient has a multisystem disease. The pyrexia, with normal C-reactive protein (CRP), musculoskeletal symptoms, pleural disease, normocytic (probably haemolytic ♦ note high bilirubin) anaemia, leucopaenia, complement consumption and renal impairment with probable sediment all point to a connective tissue disease. She is a woman of African origin, with a family history of autoimmunity. This makes systemic lupus erythematosus (SLE) far more likely than Wegener ♦s, which is more common in men.

Low CRP would go against infection. A PE would not explain all of the features of this woman ♦s illness. Antinuclear antibody would be positive in 95% of those with SLE, although, can be seen in a variety of other disorders. A positive Coomb ♦s test, suggesting an autoimmune haemolytic anaemia, would also be strongly supportive of this diagnosis. Renal biopsy is invasive, and you would probably perform urine microscopy etc. first (not listed).



<p>No.: 138</p> <p>A 44-year-old patient with rheumatoid arthritis is admitted via accident and emergency (A&amp;E) with a productive cough, cervical lymphadenopathy and signs of right upper lobe consolidation and collapse. This is confirmed on a chest X-ray (CXR). White cell count (WCC) is 11.6 and full blood count (FBC) is otherwise normal. He is saturating well on 2 l of oxygen per minute. He has been self-administering etanercept for the last 18 months twice weekly .</p> <p>Immediate management should include (select only two answers) :</p> <p>Options Choose 2</p> <p>A. Iv antibiotics, and continue etanercept          B. Iv antibiotics and stop etanercept          C. Start prednisolone 30 mg od          D. Lymph node biopsy          E. Volume computed tomography (CT) thorax          F. High resolution CT thorax          G. Give iv methylprednisolone 500 mg          H. Pulmonary function testing          I. Chest drain          J. Sputum or bronchoalveolar lavage for culture and acid fast bacilli staining and isolate patient</p>	<p>No.: 138</p> <p>B J</p> <p>Etanercept (Enbrel) is a subcutaneous injectable form of anti-tumour necrosis factor (anti-TNF) therapy. It is a fully humanised soluble TNF receptor (as opposed to infliximab (Remicade), which is a chimaeric monoclonal antibody to TNF given as an infusion 8 weekly). As with other disease modifying anti-rheumatoid drugs (DMARDs) it is immunosuppressive, and should be stopped temporarily during significant infections. Steroid therapy need only to be considered subsequently, should there be a disease flare ♦ far lower doses of prednisolone are likely to be adequate. Anti-TNF therapy has a significant association with TB recrudescence, and new tuberculosis (TB). For this reason, the BSR recommends screening prior to therapy. Cases still occur, and given the distribution of the infection and productive cough, this patient should be isolated, and appropriate barrier nursing instituted including masks until this possibility is excluded.</p>
<p>No.: 139</p> <p>A 35--year-old woman who was two months postpartum presented with a four-week history of pain in the small joints of her hands, skin rash and fever. She also had a pinkish macular rash which was confined to her face and upper chest. The ESR was 40 mm in the first hour .</p> <p>What is the most likely diagnosis :</p> <p>Options</p> <p>A. Reactive arthritis          B. Rheumatoid arthritis          C. Sarcoidosis          D. Systemic lupus erythematosus          E. Viral arthritis</p>	<p>No.: 139</p> <p>D</p> <p>All of these conditions could cause the combination of rash, arthritis and fever. The major differential is between SLE and viral arthritis, as the rash and distribution of arthritis would be atypical for sarcoid and reactive arthritis. Reactive arthritis can be associated with a rash on the palms and soles of the feet (keratoderma blenorrhagica). A rash is uncommon as a first presentation of rheumatoid arthritis. The fact that the flare occurred post partum and the rash on sun exposed skin suggest SLE.</p>



No.: 140

A 42-year-old woman complains of vague aches and pains in her joints worse in her hands. She also complains of dry eyes and a dry mouth. These symptoms have been going on for more than 6 months. On examination you find dental caries only. Her rheumatoid factor is positive as is her antinuclear antibody. X-rays of her hands are normal. What is the most likely diagnosis?

Options

- A. Sarcoidosis
- B. Rheumatoid arthritis
- C. Primary Sjogren's syndrome
- D. Scleroderma
- E. Amyloidosis

No.: 140

**C** Primary Sjogren's syndrome is the most likely diagnosis. This female has dry eyes and a dry mouth and vague musculoskeletal symptoms. Dental caries is common in patients with Sjogren's syndrome. 90% of patients develop a positive rheumatoid factor and 80 % develop a positive antinuclear antibody. Sarcoidosis does not cause a positive rheumatoid factor nor a positive antinuclear antibody. The normal x-rays point away from the diagnosis of rheumatoid arthritis. Amyloidosis does not cause a positive rheumatoid factor nor a positive antinuclear antibody.





No.: 141

A 55-year-old man presents with profound malaise and says he "feels terrible". He has aches and pains in his muscles and also gets abdominal pain after he eats. He never weighs himself but does think that his clothes have become looser recently. Occasionally he gets fevers. These symptoms have been going on for 3 to 4 months. Blood test results are as follows :

Na 136 mmol/l  
K 4.2 mmol/l  
Urea 7 mmol/l  
Creatinine 120 micromol/l

Hb 8.8g/dL  
WCC 14  
Platelets 600

ESR 120 mm/hour

Rheumatoid factor is negative .

Upper GI endoscopy is normal as is a barium enema. Chest x-ray is normal. Mesenteric angiography reveals a number of microaneurysms .

Which of the following is the most likely diagnosis?

Options

- A. Systemic lupus erythematosus
- B. Polyarteritis nodosa
- C. Wegener's granulomatosis
- D. Infective endocarditis
- E. Churg-Strauss syndrome

No.: 141

B

Polyarteritis nodosa is the most likely diagnosis. It causes malaise, fevers, muscle and joint pains and abdominal pain after eating. Leukocytosis, thrombocytosis and anaemia are common. The chest x-ray is usually normal. Microaneurysms are seen on mesenteric angiography.





No.: 142

A 60-year-old man presents with bad chest pain. It comes and goes unpredictably and is worse when he lies down. He says it feels different to his previous angina. Antacids relieve the pain. He has had gout and a raised cholesterol for many years. He also has had hyperthyroidism in the past and received treatment with radioactive iodine. His resting ECG is normal. A upper gastrointestinal endoscopy reveals a number of oesophageal ulcers. Which of the following drugs is most likely to be causing his symptoms?

Options

- A. Rosuvastatin
- B. Alendronate
- C. Atenolol
- D. Indomethacin
- E. Colchicine

No.: 142

**B**  
Alendronate is most likely to be the cause. ♦ it can cause oesophagitis and oesophageal ulcers. Indomethacin can cause oesophagitis but does not usually cause oesophageal ulcers.

No.: 143

A 25-year-old man complains of painful mouth ulcers. He was born in the Birmingham but is of Lebanese origin. He also complains of pains in his knees. When you examine him you find oral ulcers and synovitis affecting his knees. His antinuclear antibody and rheumatoid factor are both negative. ESR is 80 mm/hour. He comes back to see you a week later. His symptoms are worse and he now also has ulcers on his penis and photophobia. On examination his eyes are red and there is evidence of anterior uveitis. What is the most likely diagnosis?

Options

- A. Reactive arthritis
- B. Behcet's syndrome
- C. Gonococcal arthritis
- D. HIV infection
- E. Stevens- Johnson syndrome

No.: 143

**B**  
Arthritis affecting the leg joints, uveitis and oral and genital ulcers all point to a diagnosis of Behcet's syndrome. A raised ESR is also common. Patients are typically of eastern Mediterranean origin.



No.: 144

A 65-year-old man complains of weakness in his hands. It has come on very slowly over the last few years. On examination his grip strength is reduced bilaterally and there is wasting of the small muscles of his hands. His creatinine kinase level is 1000. Which of the following is the most likely diagnosis?

Options

- A. Polymyositis
- B. Polymyalgia rheumatica
- C. Inclusion body myositis
- D. Hyperthyroidism
- E. Motor neurone disease

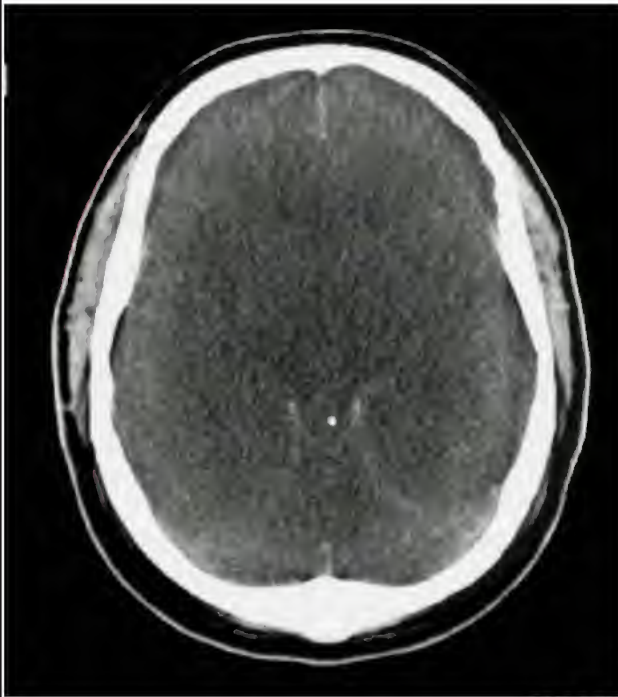
No.: 144

C

Inclusion body myositis is the most likely diagnosis - it is a type of inflammatory myositis which may be sporadic or hereditary. The bilateral weakness and wasting that come on very slowly along with a raised creatinine kinase are typical features. It most commonly affects males over the age of 50 years.



No.: 1



A case is being discussed at the Coroner's court, and you are called to give evidence. Which is not a possible cause of this appearance :

Options

- A. Opioid Overdose
- B. Hanging
- C. Depressed skull fracture
- D. Fatal stabbing attack
- E. Asphyxiation

No.: 1

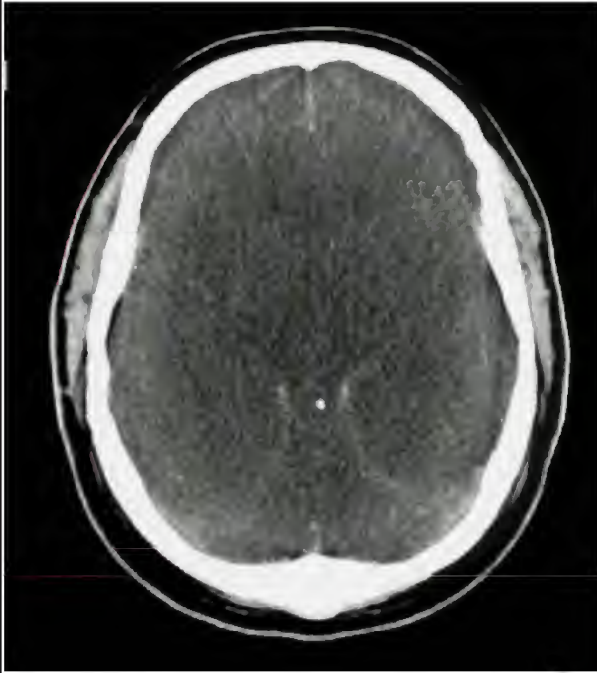
A

This is a CT scan which shows a hyperdense area in a conluent oval. The appearances are suggestive of blood (goes hypodense after a few days). Subdural and extradural haemorrhages may be seen following trauma, although a subdural can present with chronic personality and cognitive changes, whereas an extradural is more likely to present acutely .

A subdural has an irregular medial surface continuous with the surface of the brain, whereas an extradural has this encapsulated look .

Mass effect can be determined from the midline shift and ventricular compression on the ipsilateral side.

No.: 2



A case is being discussed at the Coroner's court, and you are called to give evidence. Which is not a possible cause of this appearance :

Options

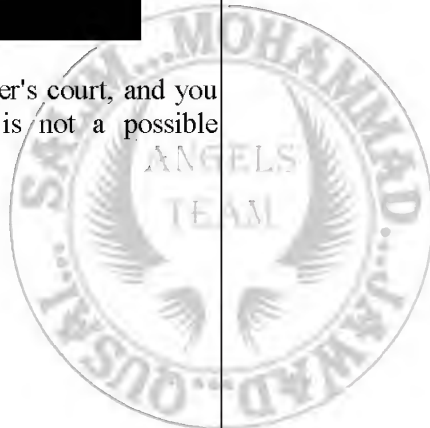
- A. Opioid Overdose
- B. Hanging
- C. Depressed skull fracture
- D. Fatal stabbing attack
- E. Asphyxiation

No.: 2

C

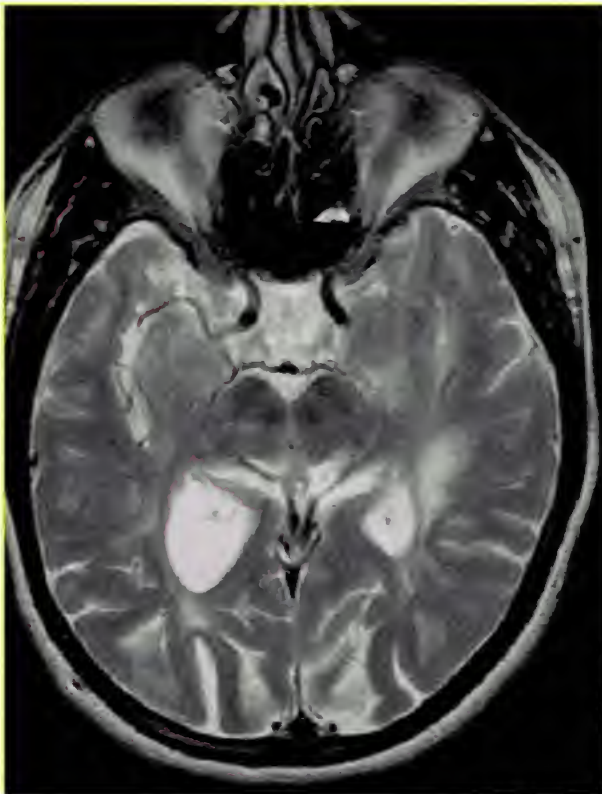
This CT scan demonstrates entire brain low density, shown by the loss of sulcal definition. - These appearances are due to anoxia, and the patient would almost certainly be comatose, if not dead, with these appearances .

There is no evidence of a skull fracture.





No.: 3



A 45-year-old man develops unsteadiness of gait. He is intermittently confused. An MRI of his brain is performed.

What is the most likely diagnosis :

Options

- A. Carotid artery dissection
- B. Sagittal sinus thrombosis
- C. Dementia
- D. Multiple Sclerosis
- E. Pontine sclerosis

No.: 3

D

There are large, bilateral white matter lesions visible on the scan. These appearances are really only consistent with multiple sclerosis. In 85% of patients there are ovoid periventricular white matter lesions, as seen here.

Other white matter diseases are relatively rare, but would include progressive multifocal leukoencephalopathy(PML) and the leukodystrophies.

Vascular disease can sometimes produce white matter changes, but these are more generalised, and not this large.

No.: 4



A 34-year-old woman, who was previously fit and well, develops some difficulty in walking, and has one or two episodes of urinary incontinence. An MRI of her spine is carried out .

Where does the lesion shown lie anatomically :

Options

- A. Intrathecal, intramedullary
- B. Intrathecal, extramedullary
- C. Extramedullary, extrathecal
- D. Dorsal root ganglion
- E. Posterior spinous ligament

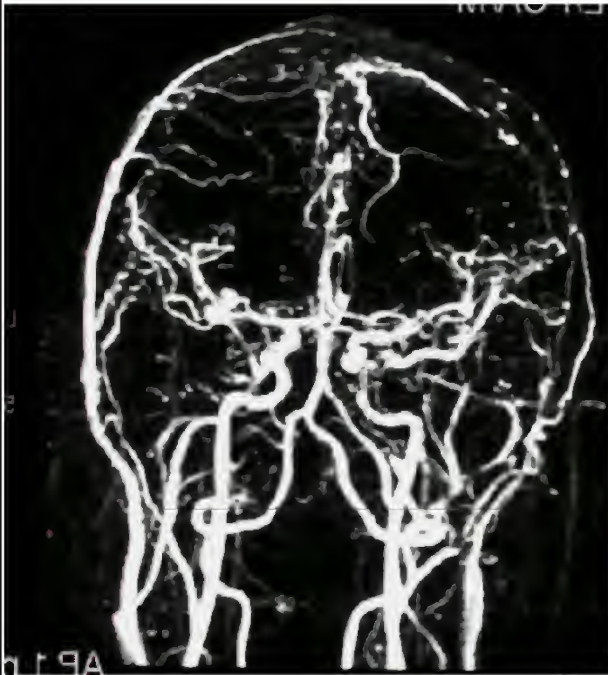
No.: 4

B

These appearances are not limited, in the abnormalities shown, to the posterior aspect of the cord, therefore the dorsal root ganglia and posterior spinous ligament are unlikely to be involved. The lesion lies within the thecal sac, although it is distinct from the cord, itself. The differential diagnosis of a lesion in the location described would be between a Meningioma and a Neurofibroma.



No.: 5



A 67-year-old woman is being investigated for recurrent drop attacks and confusion. An investigation is performed .

What is the investigation and the most likely diagnosis (no side marker) :

Options

- A. Magnetic resonance venography and carotid artery aneurysm
- B. Magnetic resonance venography and arteriovenous malformation
- C. Magnetic resonance venography and sagittal sinus thrombosis
- D. Carotid Digital Subtraction Angiogram (DSA) and Internal Carotid stenosis
- E. Carotid Digital Subtraction Angiogram and Cavernous Sinus Thrombosis

No.: 5

C

The investigation, here is delineating the venous drainage of the brain. Carotid angiograms tend to show only arterial abnormalities. Magnetic resonance venography uses MRI scanning in conjunction with an opaque dye to demonstrate anomalies in the venous system .

An arteriovenous malformation shows up as a discrete area of greater uptake because of pooling of the dye. A carotid artery aneurysm is not seen clearly with venography.

There is an area of low signal in the venous system consistent with thrombosis.



No.: 6



An 81-year-old woman lives in a nursing home. One morning she is brought into casualty by the staff because she has become lethargic, and is complaining of a headache. A CT scan is performed .  
What is the diagnosis :

Options

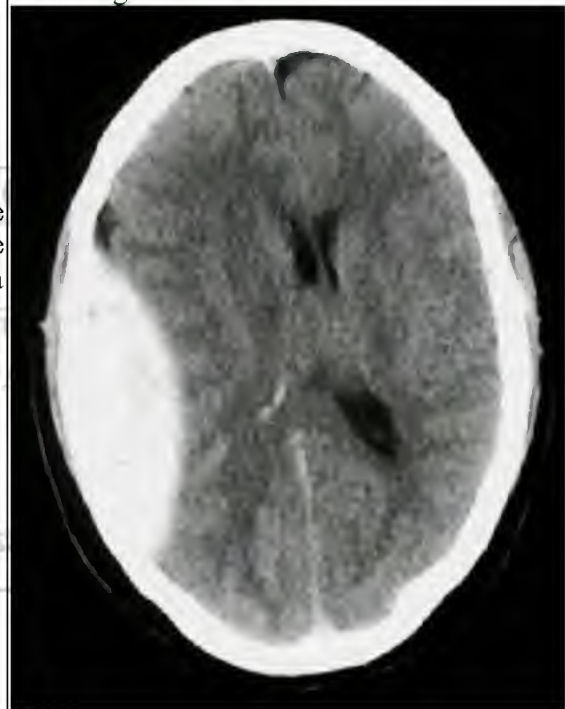
- A. Right subdural haematoma
- B. Right subdural with mass effect
- C. Right extradural
- D. Right subarachnoid haemorrhage
- E. Bilateral subarachnoid haemorrhage

No.: 6

B

The appearances of a subdural on CT scanning are that of blood (white acutely, becoming hypodense with time) which has an irregular medial surface, continuous with the brain. This is differentiated from an extradural which has a smooth, encapsulated medial surface .  
Both may follow head injury, although the effects of a subdural can be very subtle and can follow relatively minor head trauma, especially in the elderly.

The haemorrhage shown is compressing the ipsilateral ventricle and causing midline shift. This requires neurosurgical intervention.





No.: 7



A 67-year-old man complains of unsteadiness of gait, headache and visual difficulties. A CT scan of his brain is shown .

What is the likely diagnosis :

Options

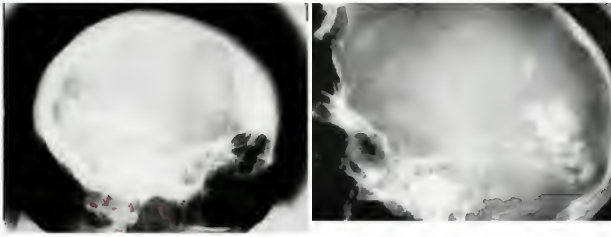
- A. Left posterior circulation infarct
- B. Left MCA infarct
- C. Left occipital metastasis
- D. Left MCA territory metastasis
- E. Sagittal sinus thrombosis

No.: 7

C



No.: 8



These patients have the same condition, what treatment has the patient on the left received :

Options

- A. Burr Hole
- B. Intracranial shunt
- C. Phenytoin
- D. Sodium Valproate
- E. Calcitonin

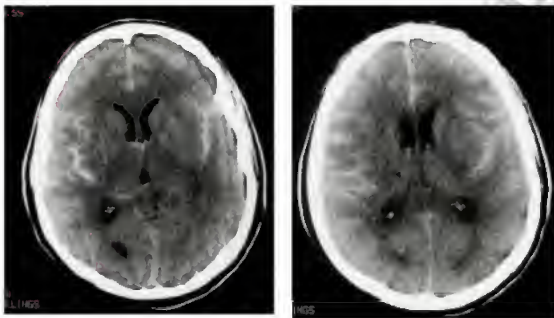
No.: 8

C

The patient has received Phenytoin (notice the skull vault thickening) .

The disease both patients have is Sturge Weber - the intracranial calcification demonstrated is secondary to abnormal vessels. Seizures are a feature of Sturge Weber syndrome. Long term treatment with phenytoin would not be the first choice because of the side effect profile.

No.: 9



What is the diagnosis :

Options

- A. Bilateral Extradural Haematomas
- B. Bilateral Subdural Haematomas
- C. Subarachnoid Haemorrhage
- D. Anoxia
- E. Posterior Circulation Infarct

No.: 9

C

This CT of the brain shows blood in the subarachnoid space. Thus the answer is C. The subarachnoid space includes the sulci and ventricles .

Extradural haematomas have regular curved medial edges as the blood lies outside the dura .

Subdural haematomas have irregular medial edges continuous with the surface of the brain .

Anoxia produces a general hypodense appearance on CT scanning.

No.: 10



This 45-year-old man has a two year history of increasing pain and weakness in both arms. His symptoms began with pins and needles, bilaterally, and the sensory disturbances have progressed in a "glove and stocking" pattern. What is the most likely diagnosis?

Options

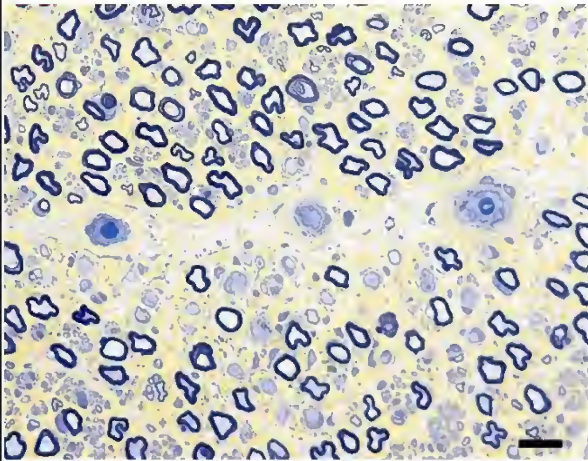
- A. Multifocal motor neuropathy
- B. Chronic inflammatory demyelinating polyneuropathy
- C. Guillain Barre
- D. Motor neurone disease
- E. Praneoplastic disease

No.: 10

B

This scan demonstrates gross hypertrophy of the brachial plexus. This is sometimes found in chronic demyelinating polyneuropathy. The diagnosis would be confirmed with nerve conduction studies.

No.: 11



A 34-year-old man has a 2 month history of a progressively worsening sensory disturbance, affecting his hands. He has noticed that his grip is not as strong as it had been previously .

A nerve biopsy of the radial nerve is performed. What does it show? :

Options

- A. Demyelination
- B. Infiltration
- C. Axonal degeneration
- D. Regrowth of fibres
- E. Onion bulb formation

No.: 11

A

There are pale, patchy fibres seen in the middle of the picture. These fibres do not have a clearly visible ring of myelin around them. This is a TAO stain, and the diagnosis made is a chronic inflammatory demyelinating polyneuropathy.





No.: 12

A 24-year-old maths student has had a recent onset of headache. The episodes tend to come on spontaneously, at any time of the day. They occur in bursts and sometimes wake him from his sleep. The pain is described as sharp and localised to the left side of his face. During the attacks he says that his nose is stuffy, and that his left eye is watery. There is no response to over the counter analgesics. He has been generally well up until this point with no past medical history. He drinks 15 units of alcohol a week and occasionally uses recreational cannabis.

His parents are alive and well, and he has a younger brother with Down's syndrome.

Which of the following features would be the most typical for a diagnosis of cluster headache?

Options Choose 2

- A. Unilateral eye watering associated with the pain
- B. Associated nausea
- C. Associated fever
- D. Precipitation by stress
- E. Associated vomiting
- F. Pain responding to amitriptyline
- G. Attacks occurring at night
- H. A visual aura
- I. Abdominal pain
- J. Positional change in pain intensity

No.: 12

A G

The history is typical for cluster headaches.

\*Location: unilateral, to one orbit (migraine too (!

\*Duration: minutes to hours

\*Patient type: 90% male, usually adolescent to middle aged

\*Onset: almost always at night. Attacks usually occur on a number of occasions over a 2 to 3 week period and then resolve for a number of months before they come on again (hence clusters)

\*Associated features: autonomic disturbances including lacrimation, stuffy nose, red eye. Vomiting is found in most headache types. A visual aura strongly suggests migraine. Abdominal pain and unusual, temporary, neurological disturbances are also suggestive of migraine

\*Treatment: ergotamine (prophylaxis), high flow oxygen, subcut sumatriptan, prednisolone. Lithium can be used in exceptional cases

NB: Chronic paroxysmal hemicrania is chronic cluster type headache occurring during the day.



No.: 13

A 34-year-old television saleswoman complains of a 3-month history of difficulty walking. She first noticed going upstairs at home, that her vision became cloudy and she lost her balance. She feels that her problems have really progressed since then. Apart from urinary frequency, she has also had tingling and pain in her hands and feet which is disturbing her sleep. Her weight is stable and she has no other symptoms. Her sister thinks that she is more tearful than usual .

On examination, she has reduced visual acuity bilaterally (to 6/20) with loss of colour vision. There is some horizontal nystagmus bilaterally. Speech is normal .

Her upper limbs are clumsy with some past-pointing, but no sensory or motor loss. The reflexes in her legs are brisk, and she is unable to stand, unaided. Romberg's test is negative. Plantars are upgoing bilaterally .

Which of the following features are not characteristic of a diagnosis of multiple sclerosis?

Options Choose 2

- A. Pale optic discs
- B. Kyphoscoliosis
- C. Cognitive disturbance
- D. Facial weakness
- E. Improvement of symptoms in pregnancy
- F. Weakness and muscle wasting confined to the hands
- G. Bowel disturbance
- H. Fatigue
- I. Painful visual loss
- J. A rapid resolution of her symptoms

No.: 13

B F

Multiple sclerosis is a demyelinating disease of the central nervous system. Therefore, it has numerous manifestations :

- \*Sensory: spinothalamic tracts - Lhermitte's
- \*Cerebellar: common. Ataxia, speech, intention tremor
- \*Motor: spastic weakness
- \*Brainstem: bulbar/facial problems. Eye movement disorders
- \*Optic nerve: optic neuritis, painful visual loss
- \*Spine: bowel, bladder
- \*Mentation: numerous disturbances (in over 60%)

Kyphoscoliosis suggests a neurogenetic disorder like Friedreich's ataxia .

Distal muscle wasting is not seen in disorders of the central nervous system.



No.: 14

A 76-year-old man has fallen at home. He lives alone, and has done for the last three years since his wife died. He remembers trying to get up from the chair after ♦Countdown♦ and falling to the ground. He doesn't think he was dizzy, and he did not lose consciousness. He has been living downstairs for the last 3 weeks since he found it too difficult to get up the stairs. His diet consists of tea and bacon sandwiches .

On examination he is a very thin man, although cheerful. His speech and higher mental function are normal. There are no cranial nerve abnormalities. The reflexes in his arms are brisk, although power and sensation are normal. Examination of his legs reveals weakness bilaterally to the hips, with stiffness, brisk knee and ankle jerks. His plantars are upgoing. There are some fasciculations visible in the thighs bilaterally .

What is the most likely diagnosis?

Options

- A. Cervical spondylosis
- B. Vitamin B12 deficiency
- C. Motor neurone disease
- D. Multiple sclerosis
- E. Anterior spinal artery thrombosis

No.: 14

C

Causes of spasticity in the legs :

Brain: MS, vascular disease, neurodegenerative diseases, tumours, paraneoplastic

Spine: B12 deficiency, Friedreich♦s, Stenosis, disc, syrinx, tumour, trauma, anterior spinal artery thrombosis.

Anterior horn cells: Motor neurone disease .

Why is this MND?

\*Fasciculations

\*Time course

\*Lack of central features

\* Lack of sensory features



No.: 15

A 65-year-old man is brought in as an emergency. He was sitting at home when his wife found him unable to speak or move at 11:30. He smokes 20 cigarettes a day and drinks around 10 units of alcohol per week. He was generally well prior to the incident, and had eaten a good breakfast earlier that day. 2 years before hand he had an angioplasty for coronary artery disease. His GP had recently started him on tablets for type 2 diabetes, and he takes 75mg of aspirin a day .

On examination, he has weakness of the right arm with sluggish reflexes. His right leg is also weak, but he is poorly co operative. He is aphasic. His pulse is 80/min and regular. His blood pressure is 160/100. Heart sounds and auscultation of the chest are unremarkable. The time is now 13:00. Your hospital has recently started thrombolysis for patients with acute stroke. You are considering this patient .

Which of the following is true?

Options Choose 2

- A. Too much time has passed since the initial incident
- B. He needs a sliding scale of insulin therapy
- C. A CT scan is required as soon as possible to rule out a haemorrhage
- D. Treatment should be delayed for another 2 hours
- E. T-PA is not an appropriate agent
- F. His intra-cranial pressure should be established
- G. The fact that he is on aspirin is a contra-indication
- H. His blood pressure needs to be reduced before thrombolysis
- I. His risk of dying from an intra cerebral haemorrhage is greater for t-PA than placebo
- J. T-PA should be given on the intensive care unit

No.: 15

C I







No.: 16

A 46-year-old man is playing golf when he collapses to the ground. He is brought into hospital by ambulance .

On arrival he is breathing spontaneously. His eyes do not open to any stimulation. There is no spontaneous movement of his limbs, but when his sternum is forcibly rubbed he is seen to extend all 4 limbs. He is making groaning noises .

There is no meningism, and pupils are equal and reactive to light. A CT scan shows blood in the ventricles .

The neurosurgeon wants to know his Glasgow coma scale. What is it?

Options

- A. 6
- B. 5
- C. 4
- D. 3
- E. 2

No.: 16

B

Eye opening :

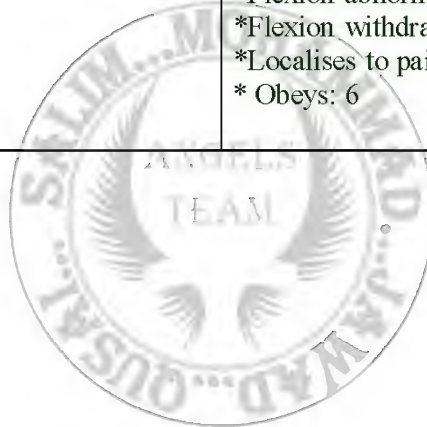
- \*Never: 1
- \*To pain: 2
- \*To verbal stimuli: 3
- \*Spontaneously: 4

Best verbal response :

- \*None: 1
- \*Incomprehensible: 2
- \*Inappropriate words: 3
- \*Disorientated: 4
- \*Converses: 5

Best motor :

- \*None: 1
- \*Extension: 2
- \*Flexion abnormally: 3
- \*Flexion withdrawal: 4
- \*Localises to pain: 5
- \* Obeys: 6





No.: 17

A 34-year-old woman from New Zealand is on holiday. Her boyfriend brings her in to see you because she has been falling .

She says that she feels as if her legs give way. She first noticed numbness and tingling in her hands and feet three weeks beforehand. Subsequently, her hands became clumsy and she found that she was unable to hold onto small objects. This developed into weakness, which is now affecting the legs, making it difficult to walk unaided. Around 2 weeks ago, she reported some low back pain, but this resolved spontaneously. Apart from a sore throat, she has been well, with no significant past medical history. She takes paracetamol, sometimes, for pain, but nothing else .

On examination, she looks well, alert and orientated. There is weakness in the upper and lower limbs, more pronounced distally .

Reflexes are absent throughout, and her plantars are difficult to distinguish .

Nerve conduction studies show reduced conduction velocities and widespread conduction block .

A lumbar puncture demonstrates 3 white cells, a protein of 0.2 and glucose of 4.5 (serum = 5) .

Which of the following are true of the management of her condition?

Options Choose 2

- A. She requires admission to hospital
- B. There will be no further progression
- C. The development of neuropathic pain is a poor prognostic sign
- D. Her vital capacity should be measured daily
- E. Low molecular weight heparins are contraindicated
- F. High dose steroids should be started
- G. There is a 20% chance that she will not survive the illness
- H. The presence of ophthalmoparesis suggests a different diagnosis
- I. Intravenous immunoglobulins are used routinely
- J. The presence of a diarrhoeal illness is unimportant in determining the cause

No.: 17

A I

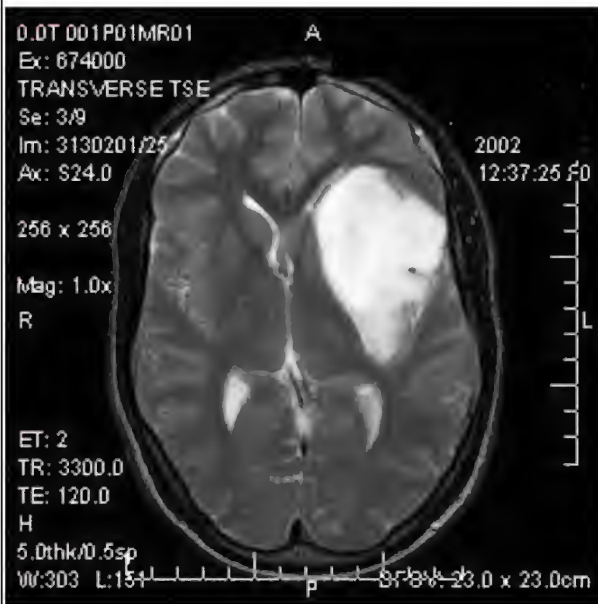
Guillain-Barre syndrome is an acute ascending polyneuropathy that follows immunological mediated damage to the peripheral nerves. Precipitants include upper respiratory tract infections and campylobacter. The clinical course is usually progressive over some weeks, and 30% of patients go on to require ventilation, hence admission to hospital is important .

Immunoglobulins and plasma exchange have a similar efficacy, but steroids do not have a role. Supportive care including thrombosis prophylaxis and monitoring for autonomic problems is important. Vital capacity should be measured 4 or more times a day .

Ophthalmoparesis occurs in the Miller Fisher variant of GBS .

10% of patients are significantly disabled after 2 years, and around 5% do not survive the illness.

No.: 18



A 54-year-old man is brought into casualty in status epilepticus. He is stabilised, eventually, with IV phenytoin and transferred to the ward.

When he is conscious, he reveals that he has been having headaches for the last three months, these have been most intense in the morning, and when lying flat. He has been vomiting all his food over the past week.

Although general examination is normal, he has a gait ataxia, falling to the right. He is also clumsy in his right hand. An MRI scan is performed.

What is the most likely diagnosis?

Options

- A. Left middle cerebral infarct
- B. Left sided meningioma
- C. Intracerebral metastatic disease
- D. Subdural haematoma
- E. Left sided glioma

No.: 18

E

The symptoms of raised intracranial pressure (headaches and vomiting) along with seizures are suggestive of intracerebral space occupying lesions.

**Glioma:** Most common tumour in adults. Malignant, life expectancy limited. Located in hemispheres, irregular edges.

**Meningioma:** Slowly progressive, arising in meninges. Regular encapsulated appearance. Good prognosis with appropriate treatment.

**Pituitary adenoma:** Arising in midline, visual field defects, hormonal presentation.

**Vestibular schwannoma:** Hearing loss, tinnitus, facial palsy.

**Metastatic disease:** Multiple foci, more common in advancing age. Lung, breast, GI tract, prostate, kidney, melanoma.

**Craniopharyngioma/Dermoid/Teratoma:** Usually present in children.



No.: 19

A 66-year-old man is found, wandering, in a local supermarket. He is wandering up and down the fruit and vegetable aisle in a state of some confusion .

On direct questioning, he is very concerned as to his whereabouts and how he came to be at the shop. He does not recall getting up that morning, nor where he lives. He can tell you that he is well, with no medical history to speak of. He does not smoke, and drinks one or two glasses of beer a week .

On examination, he is well dressed, and clean shaven. His speech is normal in fluency, rate and content, although he persistently asks about his location. His higher mental function is otherwise normal with good language and reasoning skills .

General physical examination is normal .

You are able to speak to his daughter on the 'phone, who tells you that he was fine when he left the house that morning. She seems to think he had a similar episode 2 years beforehand, when he went wandering. Apparently this resolved within a day .

Which of the following are true?

Options Choose 2

- A. This condition is prevented with aspirin
- B. No long term consequences are likely
- C. Anti-epileptic medications are appropriate treatment
- D. He should be prevented from driving for six months
- E. A lumbar puncture is required
- F. A head injury is a likely cause
- G. Resolution within hours is likely
- H. He is likely to be depressed
- I. An EEG recording is likely to be abnormal
- J. ECT is contra-indicated

No.: 19

B G

Transient global amnesia affects around 5 per 100,000 of the population. The condition occurs in middle aged and elderly persons, and had no known cause. The memory impairment is an isolated problem that comes on acutely and resolves within hours .

The main differentials are seizure activity (especially temporal lobe) and transient ischaemic attacks .

Seizures are usually associated with a more global impairment with personality being involved, whereas ischaemia would be unlikely to affect cognitive function, alone .

There are no long term consequences of this condition, and no known treatments. The risk of recurrence seems to be about 4-5% per year, which although low, is still significantly higher than the incidence in the general population.





No.: 20

A 46-year-old woman is referred from her GP with a history of "myasthenia". She has been feeling very tired and run down later in the day. Occasional episodes of double vision prompted her attendance at her GP's surgery. She has a past medical history of pernicious anaemia and treated hypothyroidism .

Which of the following features, on clinical examination, would be against a diagnosis of myasthenia gravis?

Options

- A. Absent tendon reflexes
- B. Facial weakness
- C. Dysarthria
- D. Hyperascusis
- E. Inability to open the eyes

No.: 20

**A** Myasthenia Gravis is an autoimmune disease characterised by auto-antibodies against post synaptic acetyl choline receptors .

Clinical features are almost always confined to striated muscle .

- \*Eyes: Ptosis, ophthalmoparesis
- \*Bulbar: Swallowing, speech
- \*Face: Weakness including stapedius
- \*Limbs
- \*Muscles of respiration

Sphincter involvement is rare. Tendon reflexes are almost always unaffected. Diagnosis is by EMG, tensilon test and by demonstration of antibodies to Ach receptor (can take a while!).





No.: 21

A 23-year-old psychiatric patient is referred for assessment. He was admitted to hospital 2 weeks beforehand as he had become increasingly withdrawn and stopped talking. His behaviour had become odd in the months preceding this, and his mother felt that he was more aggressive than usual.

On examination, he is mildly jaundiced. There is no flap, but there is a coarse tremor of the arms and head. Eye movements show some nystagmus bilaterally, and his speech is dysarthric. The tone in his upper and lower limbs is increased, but there are no abnormalities of reflexes or sensation. Co-ordination is diminished in the upper limbs.

Investigations :

FBC: normal

LFT: ALP 169; AST 567; GGT 379; ALB 30

U+E Sodium 130; Potassium 3.9; Urea 3.6; Creatinine 76

Clotting: INR 1.3

Which agents are likely to be useful in treating him?

Options Choose 2

- A. Interferon
- B. Vitamin B12
- C. Thiamine
- D. Co enzyme Q
- E. D-Penicillamine
- F. Tricyclics
- G. L-Dopa
- H. Pamiprexole
- I. A low copper diet
- J. Ritalin

No.: 21

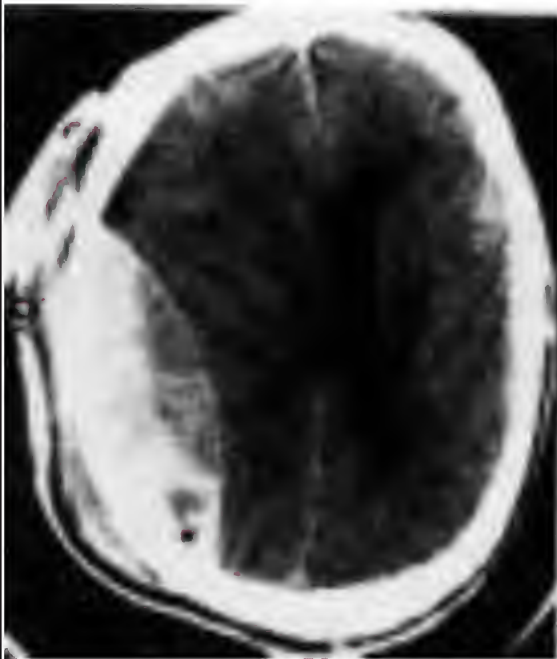
E I

The combination of liver disease, cerebellar signs and psychological disturbance in a young person is strongly suggestive of Wilson's disease. Other features include Kayser-Fleischer rings, drooling and haematological manifestations.

The diagnosis is confirmed by detecting diminished caeruloplasm levels and increased urinary copper levels.

Treatment is with a chelating agent such as penicillamine. Pyridoxine should be given alongside to prevent anaemia. There is usually a good response to therapy. A low copper diet (liver, chocolate, nuts, shellfish are high) can be useful. It is important to screen other relatives.

No.: 22



A 32-year-old Millwall supporter is involved in a fight outside a pub on the Old Kent Road. His friends are concerned that he is "not himself". Since the fight, he has complained of a headache and has felt generally unwell. He thinks that he was hit over the back of head with a chair .

On examination he is overweight, and seems to have been drinking heavily. He does not tolerate examination of his pupils. There is a boggy area beneath his scalp and a number of visible lacerations. Before you have the chance to examine him further, he becomes unresponsive. An emergency CT scan is performed .

What is the diagnosis?

Options

- A. Subarachnoid haemorrhage
- B. Subdural haematoma
- C. Extradural haematoma
- D. Cerebral contusion
- E. Ruptured berry aneurysm

No.: 22

C

The scan shows a large extradural haematoma beneath a fracture of the skull. This is an emergency, and requires evacuation of the clot as soon as possible .

A subdural is not usually this acute in presentation, and has a less well-defined medial edge on scanning .

Subarachnoid (resulting from aneurysm, in some cases) has blood in the ventricles. This is not usually related to trauma.



No.: 23

A 21-year-old man has been referred by his employer for investigation of funny turns. Colleagues at work have noticed that on 4 or 5 occasions over the last week, he has become irritable and vague, before repeatedly closing his eyes, extending his neck and smacking his lips. He would then stand up and sit down again for 2 to 3 minutes. Subsequently, he could recall nothing of these episodes, but felt sleepy for the rest of the day afterwards.

On direct questioning, he remembers smelling sulphur prior to the episodes, and feeling tired afterwards, but he cannot remember anything about the episodes, themselves. He has no previous medical history, but thinks he may have had a single seizure as a baby.

He drinks around 12 units of alcohol at the weekend, and uses cocaine recreationally.

General and neurological examination is entirely normal.

Which two agents would be the first line in the management of this patient's condition?

Options Choose 2

- A. Sodium valproate
- B. Vigabatrin
- C. Primidone
- D. Phenytoin
- E. ACTH
- F. Clonazepam
- G. Phenobarbital
- H. Diazepam
- I. Carbamazepine
- J. Ethosuximide

No.: 23

D I

The first line treatments used in epilepsy :

- \*Grand mal: carbamazepine, valproate, phenytoin
  - \*Complex partial: carbamazepine, phenytoin
  - \*Absence seizures: ethosuximide, valproate
  - \*Myoclonic seizures: valproate, methsuximide
  - \*Infantile myoclonus: ACTH, clonazepam
  - \*Status: Lorazepam/diazepam followed by phenytoin
- Lamotrigine is used in grand mal and complex partial seizures





No.: 24

The manager of a nursing home contacts you for advice. A 79-year-old man is "not himself". He has fallen to the ground repeatedly over the last few days; he does not normally do this. He has become confused, intermittently, often forgetting what he should be doing or where he is going. On some occasions he has been unable to make it to the toilet in time and has been incontinent of urine. This does not appear to have concerned him greatly, which is unusual as he is very careful about his appearance.

On the basis of this information, investigations are arranged.

Which is the most likely to provide the diagnosis in this case?

Options

- A. Fundoscopy
- B. Lumbar puncture with pressure measurement
- C. EEG
- D. CT brain
- E. Autonomic function tests

No.: 24

D

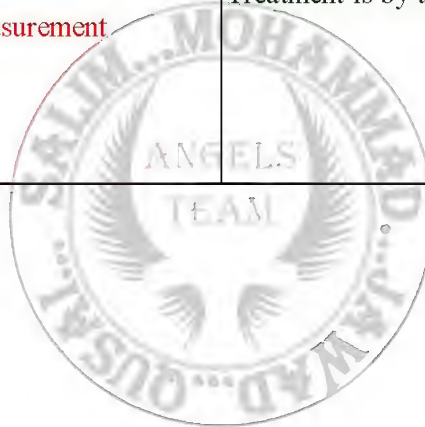
The simplified presentation, here, is a triad of Ataxia, confusion and urinary incontinence.

Although there are a number of potential causes, the subacute onset strongly suggests that normal pressure hydrocephalus is the cause of his problems.

NPH is thought to be due to a failure of resorption of CSF due to meningeal thickening. It is commoner in the elderly. The pressure is only intermittently high and papilloedema is not a feature.

The diagnosis is made on the appearance of dilated ventricles, and ruling out other causes such as Parkinsonism, vascular disease and Alzheimer's.

Treatment is by the insertion of a shunt.





No.: 25

A 65-year-old man complains of being unable to rise easily from his chair. This has been getting worse over the past week, to the point where his wife has to help him. He has recently had the flu, and although the respiratory symptoms have resolved, he still feels run down. He has noticed some difficulty with swallowing and lifting objects down from high shelves in the kitchen. He is on a tricyclic antidepressant for nerves; there is no family history of neurological problems .

On examination, he looks well. There is no rash, and he is not cushingoid. There are no cognitive disturbance or cranial nerve abnormalities to detect, although neck flexion is weak. Examination of limbs reveals proximal weakness, but no focal tenderness. Distal power is intact. Reflexes and tone are normal throughout .

Which of the following 2 tests are most likely to be normal?

Options Choose 2

- A. Serum creatinine kinase
- B. ECG
- C. Antinuclear antibody
- D. Urine myoglobin level
- E. ANCA
- F. Anti Jo1 antibodies
- G. EMG
- H. Chest X-ray
- I. Skin biopsy
- J. Muscle biopsy

No.: 25

E I

The clinical picture is that of polymyositis - painless proximal myopathy in middle age .

The other causes of a proximal myopathy :

- \*Osteomalacia
- \*Cushing's
- \*Thyroid disease
- \*Dermatomyositis (closely related)
- \*Drugs (esp. cyclosporin, statins)
- \*Inherited muscle disorders

ECG - Cardiac conduction abnormalities are surprisingly common

CXR - Associated interstitial lung disease

ANA - Positive in around half

CK - Almost invariably raised

Muscle biopsy - Atrophy and inflammatory infiltrate

EMG - Insertional activity, myopathic motor units

Anti Jo1 - More common in dermatomyositis



No.: 26

A 27-year-old Japanese music critic is brought into casualty having collapsed in the street. He is conscious, alert and orientated, and tells you that he was walking home after a heavy meal with friends when he felt his legs give way beneath him. He was then unable to get up. He feels that his weakness is improving now, although he is still unable to stand independently .

He has a history of treated hyperthyroidism (surgically). His parents are both alive, and he thinks that his father may have had 2 or 3 similar "drop attacks", but is well at the present time .

On examination, he looks well, and his speech and higher mental function are normal. There is mild weakness of neck flexion, and shoulder shrugging. His arm and legs are both generally weak, with a power of 3/5 throughout. Reflexes are sluggish, but present. Plantars are down going sensation is intact, throughout. By the time the examination has finished, he feels completely recovered, and indeed, his power has returned to 5/5 throughout. He is keen to leave the department .

What is the most likely diagnosis?

Options

- A. Botulism
- B. Hypokalaemic periodic paralysis
- C. Hyperkalaemic periodic paralysis
- D. Myotonic dystrophy
- E. Proximal myotonic myopathy

No.: 26

B

Hypokalaemic periodic paralysis is more common in the Far East. It is associated with hyperthyroidism, and is autosomal dominant. Attacks of acute weakness are precipitated by a large carbohydrate meal. It is due to a calcium channel mutation .

Hyperkalaemic periodic paralysis is due to a mutation in skeletal muscle sodium channels. It is precipitated by cold and general anaesthesia. The attacks of weakness are very brief .

Botulism does not resolve spontaneously within hours .

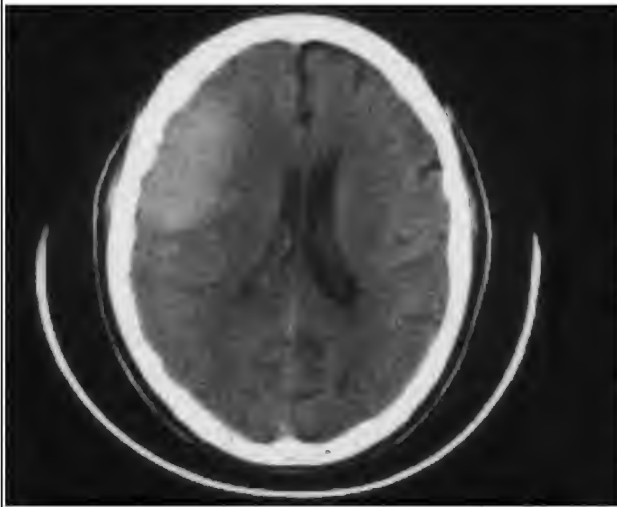
Proximal myotonic myopathy is a similar condition to myotonic dystrophy. The disease involves myotonia, cataracts and a myopathy. It is milder than myotonic dystrophy. The genetic cause is unknown.

No.: 27

A 43-year-old man has been having headaches for 2 weeks. They come in the mornings and are present throughout the day. The pain is worse when he is lying flat and when he coughs .

On examination, there is some mild weakness of the left arm and leg, with brisk reflexes on that side; examination is otherwise entirely normal. A CT scan is shown .

How should this patient be managed?



Options Choose 2

- A. Surgical excision of the lesion following biopsy
- B. Cranial radiotherapy
- C. Intrathecal chemotherapy
- D. Palliative therapy only
- E. Gamma-knife excision
- F. Mifepristone
- G. Embolisation
- H. Follow-up scans 5 years later
- I. Follow-up scans performed initially every 6 months to a year
- J. Radionuclide scanning

No.: 27

A I

This scan shows a meningioma .

The smooth, well-defined edges, homogenous appearance and peripheral location are all features. The minor degree of ventricle compression is also seen. These are usually slow growing tumours that may take years to present. They do not metastasise, and usually exert their effects through local pressure alteration .

Rarely, they arise on the ventricular walls, where they become harder to treat. Surgical excision is usually curative. Many surgeons would not even biopsy such a lesion, first. Incomplete resection does occur, and they will almost inevitably grow back. Therefore follow-up scans are required.





No.: 28

The surgical on-call team request that you review a 21-year-old Kurdish woman. She was admitted earlier on in the day with vomiting and abdominal pain. Unfortunately, the translator remains unavailable, and obtaining a history has been difficult .

Her initial abdominal pain was associated with vomiting, but no haematemesis or diarrhoea. She was mildly pyrexial, with a tachycardia of 102/min. BP 135/77. Her abdomen was reportedly rigid but with no rebound. Bowel sounds were normal. An abdominal X-ray was normal. Serum amylase was also requested, and was normal .

Over the past 2 hours, the nursing staff had become concerned because she was unable to get out of bed. Previously, she had been pacing up and down the ward, muttering .

On arrival, she looks very agitated, and appears to be trying to swat imaginary flies. Her pulse is 110/min. BP 134/87. She has a temperature of 37.4. There are no cranial nerve abnormalities. Tone is diminished in all 4 limbs, and reflexes are absent. Power is down to 3/5 distally and proximally. Sensory examination is normal, as far as you can tell .

Her brother appears; he speaks little English. He thinks that she had a similar attack in Turkey, 6 months beforehand. She has no other medical history and does not drink or smoke. Apparently she had started to go out with a new boyfriend the previous week .

What is the most likely diagnosis?

Options

- A. Guillain-Barre syndrome
- B. Botulism
- C. Acute intermittent porphyria
- D. Diphtheria
- E. Lead poisoning

No.: 28

C

This is an acute motor neuropathy in association with abdominal pain. Although any of the possible stems could be correct, the answer is porphyria .

Botulism and diphtheria both involve the bulbar musculature. Diphtheria usually also has a sensory component and a history of sore throat. Botulism affects the neuromuscular junction, so eye and face are often involved .

Guillain-Barre is not generally associated with abdominal pain, and it would be unusual to be solely motor .

Lead poisoning is unlikely to be this acute in presentation, and it is unusual for adults to accidentally ingest lead .

In support of a diagnosis of porphyria are the tachycardia, low-grade temperature and psychological disturbance. The previous attack would also make the other stems unlikely .

The patient's new boyfriend could be relevant if she had begun to take the oral contraceptive pill .

Treatment is with glucose, pyridoxine and haematin .

Diagnosis is made by porphobilinogen in the urine .

Other drugs that precipitate porphyria :

- \*Griseofulvin
- \*sulphonamides
- \*Barbiturates
- \* Phenytoin



No.: 29

A 21-year-old psychology student has been on holiday in France. He was staying on a farm. He develops a headache. This is located frontally, and gets worse throughout the day until he has to lie very still with the lights out. He also has some pain in his neck, and feels nauseous - he has been unable to eat anything since breakfast, although he hasn't vomited .

On examination, he appears flushed and agitated. His temperature is 38 degrees. Pulse 99/min BP 150/90. There is no visible rash. His neck is stiff, and he is unable to touch his chin to his chest. His fundi appear normal, and there are no cranial nerve palsies, although he is very photophobic. Reflexes are generally brisk; tone and power are normal .

Investigations :

\*FBC

Hb 14

WCC 12

Plt 256

\*U+E - NAD

\*LFT

AST 236

GGT 200 otherwise normal .

INR 1.2

\*LP

WCC 6 (lymphocytes)

Protein 1.2 g

Glucose 2.3 (serum 5.2)

Which of the following are possible causative organisms?

Options Choose 2

- A. Streptococcus
- B. Staphylococcus
- C. Pneumococcus
- D. Brucella
- E. E. coli
- F. Borrelia
- G. Haemophilus
- H. Pseudomonas
- I. Gonococcus
- J. Meningococcus

No.: 29

B F

The clinical findings suggest meningitis .

The LP findings do not, however, suggest a bacterial infection as the cause. This is known as aseptic meningitis, this does not mean that an infective agent is not responsible, however .

Causes of aseptic meningitis :

Bacterial - Borrelia (lyme), TB, leptospirosis, Brucella

Viral - Enterovirus, HSV, arbovirus, mumps, HIV

Fungal - cryptococcus, histoplasma

Other - drugs (esp. NSAID), auto immune, vasculitis, neoplasm

Acute bacterial meningitis causes a high CSF white cell neutrophilia in conjunction with an elevated protein and low glucose. The picture may be different if it is partially treated.





No.: 30

A 54-year-old man is referred from the surgeons. He had a partial gastrectomy for localised carcinoma of the stomach carried out 6 months beforehand. For the past 3 weeks his walking has deteriorated, and he has fallen in the street on 2 or 3 occasions. He feels generally quite "low" in spite of his recovery from the cancer, and is unable to work as much as he used to. He has also had uncomfortable tingling in the hands and feet that occurs throughout the day.

On examination, he looks tired and pale. He is very thin. Higher mental function is normal, although his answers to questions are slow and his mood is flat. Examination of his cranial nerves reveals a bilateral reduction in visual acuity bilaterally, with normal extra-ocular movements. Arms are normal to examination. There is some increased tone in the legs with brisk knee reflexes and absent ankle jerks. Power is reduced to 3/5 distally and 4/5 proximally. Plantars are upgoing.

Which of the following investigations is most likely to be normal?

Options

- A. Full blood count
- B. Visual evoked potentials
- C. Serum homocysteine
- D. MRI of the spine
- E. Lumbar puncture

No.: 30

E

Vitamin B12 deficiency may be caused by :

- \*Pernicious anaemia
- \*Malabsorption (sprue, worms, surgery, bacterial overgrowth)
- \*Low intake (vegans)

Site affected include the spine, optic nerves and peripheral nerves .

The pattern is often a mixed UMN/LMN in terms of presentation .

Lumbar puncture is usually normal but may rarely show a modestly elevated protein .

Homocysteine levels are increased in B12 deficiency because it is a cobalamin metabolite.





No.: 31

A 43-year-old man sustained a head injury 1 month ago in a climbing accident. He is in the neurorehabilitation unit. The nursing staff calls you because they are concerned that his mental state has deteriorated acutely. He is usually quite variable in his mood and behaviour and they report that he had become fairly aggressive earlier in the day, and was shouting at one of the other patients. Having been seen by the house officer on duty, the man was given some sedation and settled.

When you arrive, his eyes are tightly closed and he refuses to open them. His arms and legs are held rigidly by his side. He looks flushed, and has a temperature of 38 degrees. His jaw is rigid. His blood pressure is being monitored continuously as it has been fluctuant - between 100/60 and 190/120. His reflexes are brisk throughout; it is difficult to assess his voluntary movement, as his limbs are so rigid. Examination of his chest, abdomen and heart are normal. A chest X-ray and full blood count has already been performed and are normal. A CT of his head is unchanged from admission. You notice that the urine in his catheter bag is very dark.

Chose the two most appropriate steps in how he should be managed:

Options Choose 2

- A. IV access and fluids
- B. Emergency group and save
- C. Oral bromocriptine
- D. Blood cultures and blind treatment with augmentin
- E. An ice enema
- F. Position with head lowered
- G. Intravenous dantrolene
- H. Send urine for microscopy and culture
- I. Rectal diazepam
- J. Lumbar puncture

No.: 31

A G

Rigidity, pyrexia, autonomic dysfunction and myoglobinuria are strongly suggestive of neuroleptic malignant syndrome. The precipitating factor in this case is probably haloperidol given as a short-term sedative measure. The diagnosis is confirmed by a high CK level and myoglobinuria with a history of phenothiazine administration.

Treatment is geared toward protecting the kidneys (fluids) and reducing the muscle rigidity. Acutely this is best done with oral bromocriptine (or IV dantrolene if oral meds cannot be taken).

In this context, sending cultures is also worth doing.

Diazepam will be less effective.





No.: 32



A 42-year-old secretary is referred for a second opinion of repetitive strain injury. She has noticed that when she types for a long period of time, her hands become weak and numb. The problem has been getting worse over the past month. She is being treated for chronic fatigue syndrome by a homeopath. A scan of her neck is carried out.

What is the diagnosis?

Options

- A. Cervical spondylosis
- B. None (normal scan)
- C. Spinal cord tumour
- D. Syringomyelia
- E. Multiple sclerosis

No.: 32

D

Syringomyelia is caused by a process of hollowing in the centre of the cervical spine. It causes weakness of the upper limbs and dissociated sensory loss (loss of pain and temperature with preservation of light touch). There may also be weakness and ataxia in the legs due to the effect of the syrinx on the posterior columns and corticospinal tracts.

Neurosurgical treatment is sometimes considered, but is often of limited use.

Syringomyelia can also occur secondary to intramedullary tumours and, rarely, trauma.

No.: 33

A 21-year-old man works at the local refuse dump. He had to take time off work because he has had difficulty seeing. The visual problems have been getting progressively worse over the last 3 months; he no longer drives and rarely ventures out of his house. He lives with his partner in a high rise flat. He drinks 42 units of alcohol a week (usually lager), smokes 25 cigarettes a day and uses cannabis on a recreational basis .

On examination, there is loss of the peripheral fields bilaterally and a difficulty in distinguishing blue and green. Visual acuity is down to 6/20 bilaterally. Examination is otherwise normal, apart from a mild wheeze on chest auscultation. The patient thinks his mother has an eye problem and is registered blind, although he is no longer in contact with her following a dispute about drinking. Fundoscopy is shown .

Which investigations are most likely to provide the diagnosis?



Options Choose 2

- A. Serum B12 levels
- B. Mitochondrial DNA analysis
- C. Fasting serum glucose
- D. Fluorescein angiography
- E. MRI brain and spine
- F. Lumbar puncture
- G. Renal angiography
- H. Serum ANCA
- I. HIV test
- J. Intra-ocular pressure measurement

No.: 33

B D

The diagnosis is Leber's hereditary optic neuropathy. This is confirmed by :

- \*Mitochondrial DNA analysis, there are several associated mutations
- \*Fluorescein angiography shows shunting

This is a mitochondrial disease (note the maternal inheritance). The main differentials would be tobacco-alcohol amblyopia and optic neuritis. The course is too chronic for neuritis and the vascularity associated with fundoscopy is against a diagnosis of TAA .

Demyelination, Leber's, retinitis pigmentosa, TAA and HIV related disease constitute the differential for progressive visual loss in the young. Glaucoma, vascular disease, diabetes, hypertension are the major causes in older people but none of these would fit this history.



No.: 34

A 62-year-old woman has developed unsteadiness when she walks. This has come on over the past 3 weeks. She has no past medical history, although, she had some "dizzy spells" 2 years ago, which were investigated; no diagnosis was made at that time. Her mother was treated for hypothyroidism and she did not know her father. She takes a junior aspirin daily on the advice of her "friend ."

On examination she looks well. There is mild dysarthria, but the content of her speech is normal. Examination of her eye movements reveals fast nystagmus on looking downwards, but to limitation in range of movement. Visual acuity is normal (with glasses) bilaterally. The tone in her arms and legs is modestly increased, with normal power. Reflexes are brisk, throughout, with withdrawing plantars and 2 beats of clonus in both ankles .

What is the most likely diagnosis?

Options

- A. Bilateral vestibular lesions
- B. Multiple sclerosis
- C. B12 deficiency
- D. Intrinsic brainstem lesion
- E. A lesion at the foramen magnum

No.: 34

E

Nystagmus can be classified as :

- (1) Congenital vs acquired
- (2) Type - pendular, rotatory, jerky (difficult to define)
- (3) Direction .

Worse away from lesion - Tend to be vestibular i.e. inner ear or unilateral brainstem disorders

Worse towards lesion - Cerebellar

Bilateral - MS, Friedreich's

Upgaze - Brainstem lesions

Downgaze - Foramen magnum lesions .

NB - looking for associated disturbances of speech, movement disorder, cranial nerve palsies hearing disturbance is often the most valuable clue.





<p>No.: 35</p> <p>A 22-year-old woman with recurrent headaches has been diagnosed with benign intracranial hypertension. In spite of cerebrospinal fluid drainage, she has had persistent headaches .</p> <p>Which of the following features would suggest that BIH is not the correct diagnosis?</p> <p>Options Choose 2</p> <p>A. Absence of papilloedema at presentation          B. Obesity          C. A history of menstrual irregularity          D. A failure to respond to oral steroids          E. A failure to respond to oral acetazolamide          F. Continuing headaches with a normal CSF pressure          G. Visual field changes          H. Use of isotretinoin          I. Thyroid disease          J. An elevated protein on lumbar puncture analysis</p>	<p>No.: 35</p> <p>A J</p> <p>Benign intracranial hypertension is slightly misleading, as the headache and visual field loss associated with this condition are certainly not benign. It occurs, most commonly, in young obese women. Menstrual irregularities and endocrine disorders are associations, while excessive vitamin A (isotretinoin) and tetracycline are the causative factors .</p> <p>The pathological process is unknown, but sufferers all have papilloedema and elevated CSF pressures. The visual problems will remit if treatment is given in time. Prednisolone and acetazolamide are not 100% effective. Although the visual problems can resolve, the headache is often protracted, and difficult to treat .</p> <p>Guillain-Barre, spinal block and SLE have been associated with a similar clinical picture, but these conditions will almost inevitably produce raised CSF protein.</p>
<p>No.: 36</p> <p>A 45-year-old policeman was attacked with a knife while trying to catch a thief. He was brought to the emergency department. On examination he had a superficial neck laceration with minimal bleeding .</p> <p>What is most likely to be the resulting damage considering that vital signs are normal?</p> <p>Options</p> <p>A. Paralysis of sternocleidomastoid and superior fibres of trapezius, drooping of the shoulder          B. Paralysis of mylohyoid, anterior belly of digastric, tensor tympani, and tensor veli palatini .          C. Paralysis of the posterior belly of digastric, stylohyoid and stapedius          D. Anosmia          E. Tinnitus</p>	<p>No.: 36</p> <p>A</p> <p>A neck laceration might damage the spinal root of the accessory nerve (XI), resulting in paralysis of sternocleidomastoid and superior fibres of trapezes and drooping of the shoulder .</p> <p>The innervation of the digastric muscle is by the trigeminal nerve (anteriorly) and the facial nerve (posteriorly). These are too deep to be injured in this way .</p> <p>Anosmia (olfactory) and tinnitus (vestibulocochlear) are also too deep.</p>





<p>No.: 37</p> <p>A 25-year-old surgical house officer presents with foot numbness. On examination he has reduced sensation over the dorsum of the foot and weakness of dorsiflexion and eversion .</p> <p>Which structure is most likely to have been affected?</p> <p>Options</p> <p>A. Tibial nerve B. Sciatic nerve C. L5 nerve root D. Common peroneal nerve E. Posterior tibial nerve</p>	<p>No.: 37</p> <p><b>D</b></p> <p>Common peroneal nerve damage often results from pressure on the nerve as it winds around the head of the fibula in thin people. This can be caused by prolonged crossing of legs, tight plaster casts and obstetric stirrups. There is weakness of dorsiflexion and eversion. Inversion (which is a function of the L5 root and the tibial nerve) remains intact.</p>
<p>No.: 38</p> <p>A 23-year-old woman presents with symptoms of right leg and arm numbness. Examination reveals bilateral clonus and mild increase in tone in the legs, with subjective alteration of sensation in the right arm and leg. On questioning she says that she had painful blurring of vision a few weeks ago .</p> <p>Which of the following tests would be least useful?</p> <p>Options</p> <p>A. MRI brain with gadolinium B. Visual evoked potentials C. CSF oligoclonal bands D. Somatosensory evoked potentials E. MRI lumbar spine</p>	<p>No.: 38</p> <p><b>E</b></p> <p>The patient gives a history consistent with previous optic neuritis and probable MS. She has signs affecting upper and lower limbs so is most likely to have brain and cervical cord lesions. 75% of patients with definite MS have abnormal VEP and 50% have abnormal SSEPS. MRI shows abnormalities in at least 80% of patients with MS.</p>



<p>No.: 39</p> <p>A 43-year-old man from China presents with difficulty in walking. On examination, he has mild weakness, bilateral clonus, brisk reflexes in the legs and extensor plantars .</p> <p>Which of the following tests would be least appropriate?</p> <p>Options</p> <p>A. Counselling and genetic testing B. Lung function tests C. MRI spinal cord D. Nerve conduction studies and EMG E. HTLV Serology</p>	<p>No.: 39</p> <p><b>B</b></p> <p>This patient is presenting with a spastic paraparesis. Possible causes include hereditary spastic paraparesis, spinal or foramen magnum SOL, Chiari malformation, primary lateral sclerosis and tropical spastic paraparesis. Lung function testing is of great importance in a patient presenting with signs and symptoms of Guillain-Barre syndrome.</p>
<p>No.: 40</p> <p>A 73-year-old man presents confusion. On examination he has increased tone in all four limbs and a resting tremor. He also claims to have seen several people around his house when his wife maintains that none but herself was present .</p> <p>What is the most likely diagnosis?</p> <p>Options</p> <p>A. Corticobasal degeneration B. Multi-infarct dementia C. Lewy body disease D. Frontotemporal dementia E. Normal pressure hydrocephalus</p>	<p>No.: 40</p> <p><b>C</b></p> <p>This patient has the clinical characteristics of Lewy body disease with confusion, cognitive impairment and visual hallucinations, with mild extra-pyramidal features.</p>



<p>No.: 41</p> <p>A 56-year-old diabetic presents with severe painful spasms affecting all his limbs. On examination, he is unable to walk and is found to have profoundly increased rigidity with superimposed spasms. Any noise nearby causes him to have extremely painful spasms. Eye muscles are unaffected .</p> <p>Which of the following tests is most likely to be positive?</p> <p>Options</p> <p>A. Anti glutamic acid decarboxylase (GAD) antibodies B. Anti Yo antibodies C. Anti Hu antibodies D. Anti GQ1b antibodies E. Anti voltage gated Ca channels</p>	<p>No.: 41</p> <p>A</p> <p>Anti GAD (glutamic acid decarboxylase) - Stiff Man (Person) syndrome . Anti Yo - Cerebellar degeneration, ataxia, associated with Ca ovary, fall tubes, lung . Anti Hu - Encephalomyelitis, brainstem signs, sensory neuropathy, small cell lung, Ca prostate, breast, Hodgkin . Antibodies to voltage gated Ca channels - LEMS . Anti Ri - Ocular/gait disorder (opsoclonus/myoclonus), breast, fall tube, small cell lung.</p>
<p>No.: 42</p> <p>A 74-year-old voluntary worker presents with recent cognitive decline. Her husband says that she has also recently developed urinary incontinence. On examination her gait is short stepped and shuffling. There is no rigidity or tremor, and she seems mildly confused .</p> <p>Which of the following is likely to be most useful?</p> <p>Options</p> <p>A. Vitamin B12 levels B. Lumbar puncture and CSF pressure measurement C. VDRL D. MRI lumbar spine E. Radionuclide cisternography</p>	<p>No.: 42</p> <p>B</p> <p>This lady has the signs and symptoms of normal pressure hydrocephalus (slowly progressive gait disorder and impairment of mental function (the third is sphincteric incontinence). In most cases CSF pressure is above 15.5 cm H<sub>2</sub>O. CT is often the most useful ancillary investigation.</p>



<p>No.: 43</p> <p>A 23-year-old girl with severe acne presents with generalised headache and blurred vision. On examination she has bilateral papilloedema and a bilateral VIth nerve palsy .</p> <p>Which of the following investigations is most likely to be abnormal?</p> <p>Options</p> <p>A. MR venogram B. CT C. CSF pressure measurement D. CSF oligoclonal bands E. Mini mental state examination</p>	<p>No.: 43</p> <p><b>C</b></p> <p>This young woman has benign intracranial hypertension, most likely secondary to treatment with isotretinoin or tetracycline for her acne. The CSF pressure is likely to be between 25 and 45 cm H<sub>2</sub>O. Other related pathologies include hypothyroidism, hypercoagulable states (e.g. OCP, pregnancy), lead and steroids. An important diagnosis on the differential is sagittal sinus thrombosis (for which the investigation of choice is an MR venogram).</p>
<p>No.: 44</p> <p>A patient recently diagnosed with schizophrenia presents with fever, muscle rigidity and profuse sweating. Blood tests reveal a raised CK and worsening renal function .</p> <p>Which of the following is the most appropriate treatment?</p> <p>Options</p> <p>A. Bromocriptine B. Olanzapine C. Lithium D. Promethazine E. Procyclidine</p>	<p>No.: 44</p> <p><b>A</b></p> <p>The patient is likely to be suffering from the neuroleptic malignant syndrome, caused by his neuroleptic medication. This consists of the features described, potentially leading to coma and death. Appropriate treatment includes oral bromocriptine or IV dantrolene, together with supportive therapy. Meningitis, heat stroke, lithium intoxication and acute dystonia are part of the differential diagnosis. The newer antipsychotics can cause the reaction. Procyclidine is an appropriate treatment for neuroleptic-induced dystonias.</p>



No.: 45

A 32-year-old epileptic with learning difficulties presents with new onset diplopia and blurred vision. Their care worker informs you that the patient has recently been started on an anti epileptic, but does not know which one .

Which one of the following medications is most likely to have caused these side effects?

Options

- A. Valproate
- B. Felbamate
- C. Carbamazepine
- D. Ethosuximide
- E. Gabapentin

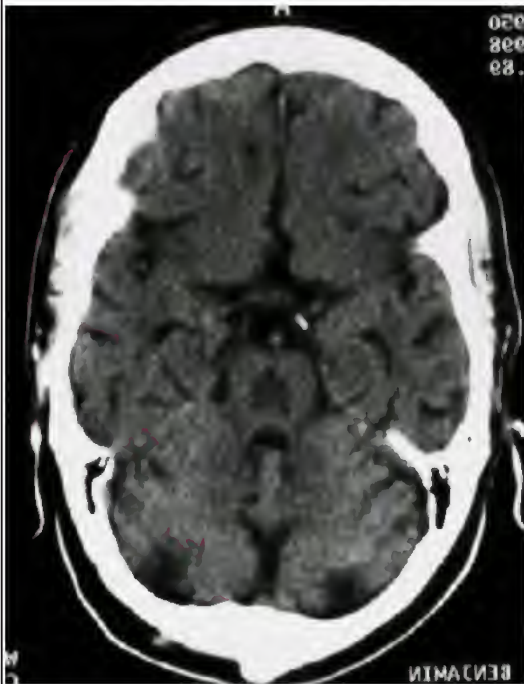
No.: 45

C

The list of side effects of antiepileptic medications is huge. Here are some of the important ones :

- \*Ataxia: phenytoin, carbamazepine, phenobarbital, primidone, gabapentin, lamotrigine, topiramate
- \*Diplopia: carbamazepine, phenytoin, lamotrigine
- \*Tremor: tiagabine, valproate
- \*Thrombocytopenia: valproate
- \*Weight gain: carbamazepine, gabapentin, valproate

No.: 46



What abnormality is shown?

Options

- A. Bilateral occipital infarcts on CT
- B. Bilateral occipital infarcts on MRI, Axial FLAIR
- C. Left carotid artery thrombus, on CT
- D. Central pontine myelinolysis, on CT
- E. Central pontine myelinolysis on MRI, Axial FLAIR

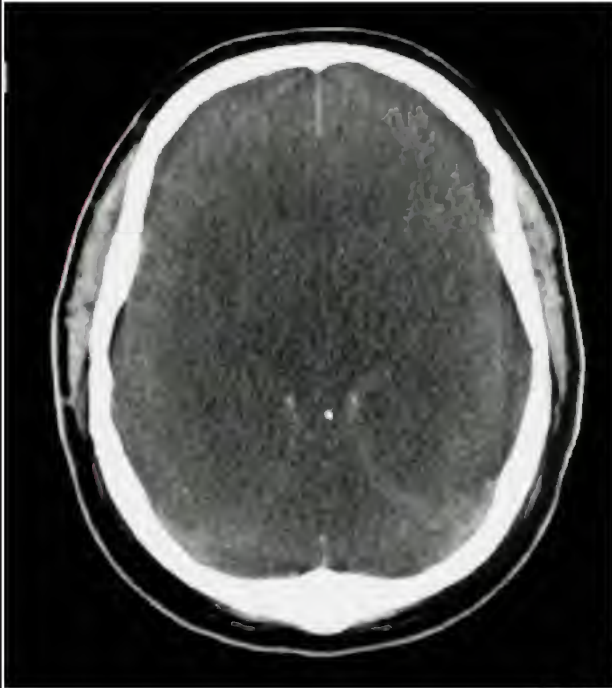
No.: 46

D

Cause: Rapid correction of hyponatraemia

Radiology: Low density in pons on CT

No.: 47



Which is not a possible cause of this appearance?

Options

- A. Opioid overdose
- B. Hanging
- C. Depressed skull fracture
- D. Fatal stabbing attack
- E. Asphyxiation

No.: 47

C

On carefully observing the CT, the brain has a low density owing to anoxia. Causes include all except skull fracture.



No.: 48



What is the diagnosis?

Options

- A. Right subdural haematoma
- B. Right subdural with mass effect
- C. Right extradural
- D. Right subarachnoid haemorrhage
- E. Bilateral subarachnoid haemorrhage

No.: 48

B

This is a case of right subdural haematoma as seen from the CT .

Cf. with extradural.



No.: 49



What is the likely diagnosis?

Options

- A. Left posterior circulation infarct
- B. Left MCA infarct
- C. Left occipital metastasis
- D. Left MCA territory metastasis
- E. Sagittal sinus thrombosis

No.: 49

C

V-shaped (white matter)-vasogenic edema  
cf. cytotoxic (white matter & grey matter)-oedema due  
to infarct





No.: 50



What is the likely site of blood?

Options

- A. Intracerebral
- B. Subpial
- C. Subarachnoid
- D. Subdural
- E. Extradural

No.: 50

C

Answer: Subarachnoid

The gyri/sulci are too bright/white. This is due to acute bleeding into the subarachnoid space .

Note - lateral ventricles are dilated.





No.: 51

A 24-year-old woman is referred with visual problems. She has noticed over the past 3 weeks, that she is having recurrent episodes of double vision. She is generally well, otherwise, although she says that she has been feeling a bit run down lately. She smokes 10 cigarettes a day, and drinks around 10 units of alcohol at the weekends. Her mother died in a car accident when she was 4-years old. Her father is alive and well .

On examination, she has a bilateral ptosis. Her pupils are equal and reactive to light and accommodation. Her visual acuity is 6/6 bilaterally. She has limitation of abduction, bilaterally, and her up gaze is also impaired. Further examination of her cranial nerves reveals a sluggish gag response and weak palatal elevation and tongue movements. When given a glass of water, there is a mild degree of nasal regurgitation. The power, tone and reflexes are normal in her arms and legs, and sensory examination is normal throughout .

On the basis of this information, where is the most likely site of pathology?

Options

- A. Peripheral nerve
- B. Muscle
- C. Neuromuscular junction
- D. Brain stem
- E. Cerebellum

No.: 51

C

The first step in the approach to many neurological problems is to localise the lesion .

Peripheral nerve - Diminished reflexes, distal sensory loss and weakness, down going or absent plantars. NB: Beware Miller-Fisher variant of GBS! - Eye movements affected without limb involvement. But bulbar musculature and ptosis would not occur in this condition .

Brainstem - Often have long tract (UMN) signs in limbs. Usually unilateral. The pattern of cranial nerves affected should be anatomically consistent, so that adjacent cranial nerves are affected .

Spine - Lower lesions produce weakness, wasting, brisk reflexes and up going plantars. Autonomic and sphincter involvement occur .

Neuromuscular junction - Can affect the eyelids, extra-ocular muscles and bulbar musculature without involving the limbs. Reflexes are preserved. Fatigueability is not always present. Pattern of involvement is, however, usually symmetrical .

Primary muscle - Proximal weakness. Some myopathies can involve the extra-ocular muscles, but this is very rare, and unlikely in the absence of limb signs. Muscle wasting is rare.

No.: 52



An 87-year-old woman is referred for assessment from the residential home where she lives. Over the past week the staff have been concerned about her general well being. She has become increasingly withdrawn and no longer participates in playing bridge or bingo, which she previously greatly enjoyed. She has also fallen on 2 occasions. She has a history of coronary artery disease and severe osteoarthritis .

On examination her GCS is 15/15. Her MTS is 8/10. She is mildly ataxic, but shows no evidence of nystagmus or past pointing. The rest of her examination is normal, although her ankle jerks appear to be absent .

A scan is performed .

Options

- A. Reassurance of care staff
- B. Urgent neurosurgical referral
- C. Chest X-ray and oncology referral
- D. Lumbar puncture
- E. Observe and re-scan in 6 months

No.: 52

B

This is the appearance of a chronic subdural haematoma. It is compressing the ventricles and exerting a mass effect. The appropriate management of this lesion is neurosurgical referral with a view to proceeding to drainage .

The appearance is characteristic with an irregular medial edge continuous with the surface of the brain. The area of abnormality is bright in the acute situation, but dark in chronic bleeds .

Unfortunately this condition is relatively common in the elderly, and those on anticoagulation are most at risk. The precipitating trauma is often not remembered, and may seem to have been fairly trivial .

Presentation is often with a vague constellation of symptoms, such as cognitive disturbance, incontinence and ataxia. The clinical manifestations are more severe when ventricular compression occurs .

An extra-dural haemorrhage follows severe trauma, and is often associated with a fracture of the skull. The medial edge is smoother and linear.





No.: 53

The surgical team call you to see a patient on the ward for ♦seizures♦. Four days beforehand, she had an open cholecystectomy, which was uneventful. Her initial postoperative recovery period was good, with early resumption of full oral nutritional intake and very little pain. She is 35-years old and is on no regular medication .

She has had two witnessed attacks. During each episode, she is seen to fall to the floor and thrash her arms and legs around asymmetrically. Her eyes are tightly shut, but she does not bite her tongue and has not been incontinent of urine. She remembers little of the episodes when they have stopped (within 2 minutes) and she seems drowsy after each attack. She has no awareness of the onset of an attack, and tells you that she thinks she has had some similar episodes while she was at school. At this point in the history, she emits a shriek and falls back into the bed before an ♦attack♦ begins .

Which of the following features would be most suggestive of a non-epileptic aetiology for the episode?

Options Choose 1

- A. Talking during the attack
- B. Repeated semi-purposeful movements
- C. Flickering of the eyelids
- D. Hyperventilation
- E. Generalised rigidity
- F. Urinary incontinence
- G. Cessation of the attack to command
- H. Walking around the bed
- I. Clenching and unclenching the fists
- J. Changing facial expression

No.: 53

G

Non-epileptic attacks or pseudo seizures are a common phenomenon. They may be very difficult to differentiate from epileptic seizures per se. In some patients they may become very problematic and can be a manifestation of underlying psychological disturbance.

It is important to be aware of what constitutes a pseudo seizure and what constitutes an epileptic fit, because the diagnosis of epilepsy carries significant social and medical implications. Long-term treatment with anti convulsants is also not without it ♦s problems.

Complex partial seizures (temporal lobe) may present with automatisms, unusual patterns of speech, or even co-ordinated movements, such as walking or undressing. Grand mal seizures and absences are a little clearer in their presentation.

Generally, any attack which can be voluntarily terminated, or during which the patient has full awareness is not an epileptic seizure. Attacks without a post ictal phase or which are initiated voluntarily are also unlikely to be seizures.

In terms of a gold standard, the visualisation of abnormal electrical discharges on an EEG in association with an attack is the most reliable technique.

Apparently, a mirror placed in front the face of an individual having a non-epileptic attack will determine the nature of the attack, as those who are not fitting cannot resist having a look at themselves.





No.: 54

A 45-year-old man has been asked to take time off work, because his boss is concerned about his performance. He works as a store manager, keeping records of the transactions that occur in a large warehouse. Over the last few months he has become increasingly irritable, often losing his temper over minor incidences. He has also become very clumsy, dropping a number of fragile objects .

He has a past history of asthma, although he smokes between 8 and 10 cigarettes a day. He drinks rarely. He is married with 2 children, both of whom are well. His mother is alive and well, his father died in a road traffic accident when he was young .

On examination, he appears nervous and restless; he twitches and blinks repeatedly. His MTS is 7/10, having difficulty with concentration and attention. His memory is preserved. Apart from some difficulty in fine movement, neurological examination is normal. There is no pout reflex .

What is the most likely diagnosis?

Options

- A. Parkinson's disease
- B. Frontotemporal dementia
- C. Vascular dementia
- D. Alzheimer's disease
- E. Huntington's chorea

No.: 54

E

Huntington's is an autosomal dominant disorder with a prevalence of around 5 per million. Penetrance is almost always complete, so occurrence in either parent implies a 1 in 2 chance of the offspring developing the disease .

The abnormal gene is trinucleotide repeat sequence on the short arm of chromosome 4. The disease demonstrates anticipation, with increasing severity in succeeding generations .

The disease is characterised by cognitive disturbance in association with choreoathetosis. The cognitive disturbance almost inevitably precedes the movement disorder, which can be very subtle in its early stages, with increased blinking frequency and tics. Later, florid chorea develops (uncontrollable semi-purposeful movements), eventually, the movement disorder becomes disabling, and even walking is no longer possible. In the early stages of the disease, mood and behaviour may be subtly affected. Patients may appear to become more irritable, lethargic or verbose. Progressive deterioration occurs, so that the patient is eventually severely impaired .

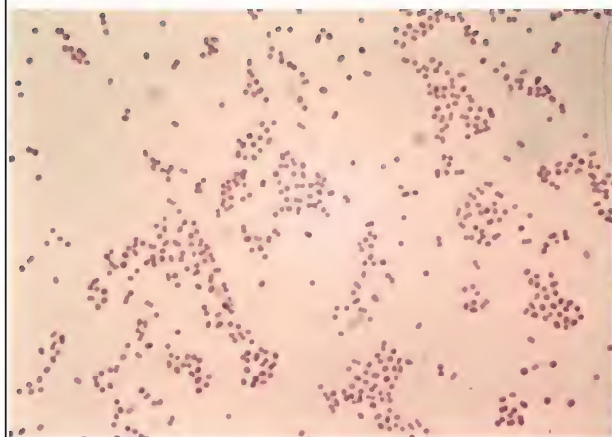
Parkinson's can present in this way, although blink frequency is diminished, and spontaneous movements (apart from tremor) are unusual. Frontotemporal dementia usually has early language involvement, with frontal release signs (pout reflex). Early memory involvement is the norm with Alzheimer's and vascular dementia is a more generalised stepwise process, with associated long tract signs.

No.: 55

A 14-year-old girl is brought in as an emergency from school. She was well earlier in the day, but developed a fever at lunchtime, and felt generally unwell. While waiting for her mother to collect her and take her home, she collapsed to the ground .

On examination, her GCS is 8, and she is disorientated. Her temperature is 38C, pulse 110/min and she is holding her neck rigid. She complains bitterly of headache, and is obviously photophobic. There is no obvious skin rash visible. A full blood count shows Hb 13.4, wcc 15.6 and plt 198. Renal and liver function tests are normal. A lumbar puncture is performed. This shows a CSF opening pressure of 15cm H<sub>2</sub>O, 0 rbc and 10,000 wcc (pleomorphic). An urgent gram stain is performed .

What is the most appropriate management?



Options Choose 1

- A. Administer oral penicillin
- B. Administer oral chloramphenicol
- C. Administer IV ampicillin
- D. Administer IV cefotaxime
- E. Administer oral ceftazidime
- F. Administer oral penicillin
- G. Administer IV rifampicin
- H. Administer oral rifampicin
- I. Administer gentamicin
- J. Await sensitivities

No.: 55

D

The presentation is classical for bacterial meningitis with pyrexia, altered consciousness level, photophobia and neck stiffness. The gram stain here shows gram-negative (pink) cocci. The most likely organism, therefore, is meningococcus .

Gram-positive cocci are more likely to be streptococci or staphylococci .

Either way, early treatment of bacterial meningitis is vital. If there is to be any delay in obtaining CSF and blood cultures, empirical treatment should be started as soon as possible .

□ Blind ♦ treatment bacterial meningitis involves a 3rd generation cephalosporin and ampicillin in infancy and the elderly. Otherwise a 3rd generation cephalosporin will suffice - Listeria is thought to be more sensitive to ampicillin .

In areas with high levels of penicillin resistant pneumococci, consideration may be given to adding vancomycin to the established regimen .

Antibiotic treatment should be continued for at least 10 days

There is evidence that the administration of steroids to children with severe infections may reduce the incidence of complications, such as deafness, although mortality rates are unaffected.



No.: 56

A 43-year-old man has a tumour of the left parotid gland, and is referred to the ENT surgeons for an excision operation. The tumour is more extensive than originally thought, and during the surgery, a large section of the parotid gland has to be removed in order to resect the tumour to beyond its margins. He is discharged on the day after the operation. His wife, however, notices that his face looks a bit different, and he is referred for assessment.

Which of the following features is not suggestive of a lesion of the left 7th cranial nerve?

Options

- A. Weakness of the left forehead muscles
- B. Hyperacusis of the left ear
- C. Impairment of taste over the posterior third of the tongue
- D. Bell's sign in the left eye
- E. Drooling from the left corner of the mouth

No.: 56

C





No.: 57

A 56-year-old woman works as a librarian. She has been fit and well until recently, when she has noticed that it is becoming increasingly difficult to get books from high shelves. She takes paracetamol, occasionally for headaches, but is otherwise on no regular medication. She has one brother who is alive and well at the age of 53. She smokes 10 cigarettes a day, but does not drink alcohol.

On examination, there are no higher mental function abnormalities or cranial nerve disturbances. Her speech and swallow appear to be normal. There is some proximal weakness around her shoulders and her hips. Otherwise power in all 4 limbs is entirely normal. Reflexes and sensation are also normal. Her plantars are down going bilaterally.

Which of the following investigation results is least likely to be relevant in diagnosing a cause of her problems?

Options Choose 1

- A. Abnormal thyroid function tests
- B. An elevated ESR
- C. An abnormal chest X-ray
- D. An abnormal dexamethasone suppression test
- E. Positive anti Ach receptor antibodies
- F. Abnormal muscle biopsy
- G. Elevated creatinine kinase
- H. Cerebellar degeneration on MRI scanning

No.: 57

H

Cerebellar degeneration on MRI scans.

A proximal myopathy may mimic the presentation of myasthenia gravis.

Causes of a proximal myopathy :

- \*Inflammatory - Polymyositis (high ESR, CK, antinuclear antibodies)
- \*Metabolic - Cushing's, dysthyroid states, osteomalacia, and fatty acid disorders
- \*Drugs - cyclosporin, statins
- \*Alcohol
- \*Paraneoplastic - dermatomyositis
- \*Congenital - Duchenne's, Becker's, FSHD
- \*Mitochondrial disorders

Cerebellar degeneration may occur in thyroid disease, with alcohol use or as a paraneoplastic phenomenon, but it is not connected to the causes of a myopathy.





No.: 58

A 23-year-old man has developed numbness and pins and needles in both hands. He has had to take time off from his job as a graphic designer because he is having difficulty using pencils and other small implements. He has had no systemic symptoms, his weight has been stable, and he has not had any recent illnesses .

His mother is alive and well at the age of 50. His father passed away 20 years ago in a road traffic accident. He is on no medication. He drinks 15 to 20 units of alcohol per week, does not smoke, but sometimes uses recreational cocaine and ecstasy .

On examination, his cranial nerves and cognitive function are normal. There is some loss of pinprick, light touch, joint position sense and vibration in both hands, with similar sensory loss in the feet. Motor examination shows mild (4/5) weakness of the small muscles of both hands and feet. There are obviously palpable, thickened ulnar nerves and peroneal nerves .

Which is the least likely diagnosis?

Options

- A. Amyloidosis
- B. Charcot-Marie-Tooth disease
- C. Refsum's disease
- D. Lead toxicity
- E. Dejerine-Sottas disease

No.: 58

D

This presentation is of a mixed (sensory motor) peripheral neuropathy in association with palpable peripheral nerves .

Causes of thickened peripheral nerves :

\*Leprosy - association with depigmentation and localised areas of numbness

\*Amyloidosis - may be secondary or primary. Diagnosis by nerve biopsy and SAP scan

\*Refsum's disease - storage disorder, includes cerebellar disease, retinitis pigmentosa, and hearing problems

\*Charcot-Marie tooth - in 25% of cases, usually predominantly motor

\*Dejerine-Sottas disease - hypertrophic peripheral neuropathy

Lead toxicity causes a motor neuropathy and is not a cause of thickened peripheral nerves; porphyria and multi-focal motor neuropathy are the 2 other causes of a solely motor neuropathy.

No.: 59

A 56-year-old plumber is known to have a large (>6cm) aortic aneurysm, and elective surgery is being planned for this. The aneurysm was picked up on an ultrasound during investigation of haematuria 1 year beforehand. An elective repair is performed, and he is initially well post operatively. When the time comes to mobilise him, the physio reports that his legs are stiff and weak. Catheter removal is difficult (he remains incontinent) and he is constipated. An MRI of his spine is carried out.



Options Choose 1

- A. Transverse myelitis
- B. Infarction of the spinal cord
- C. Metastatic disease
- D. Spinal haemorrhage
- E. Syringomyelia
- F. Disc herniation
- G. Spinal meningioma
- H. Arterio-venous malformation
- I. Vitamin B12 deficiency

No.: 59

B

Acute infarction of the anterior spinal artery will produce this picture of pyramidal weakness and sphincter disturbance. The artery is sometimes picked off during aneurysm repair - a situation that is often not recognised until quite late in the postoperative period .

The scans show a pale area in the lumbar expansion of the cord. Syrinxes generally occur at a higher level than this, and extend over a number of segments. There is no visible disc herniation or evidence of an intra-dural tumour or any vascular malformation .

Transverse myelitis is acute spinal inflammation. It may be the presenting feature of multiple sclerosis or may occur as part of another disease, such as sarcoidosis. It would be unusual for a gentleman of this age to develop such an abnormality .

There is nothing in the history to suggest a haemorrhage (such as anti-coagulation or a clotting disorder) and the presentation is too acute and isolated to be B12 deficiency.



No.: 60

A 46-year-old diabetic man has developed difficulty walking. He has type-1 diabetes, and has been on subcutaneous insulin injections for the last 37 years. Unfortunately, his wife recently died, and he has begun to drink heavily. Currently, he has found it increasingly hard to walk for short distances without becoming unstable and falling over .

Which of the following features, on examination, make a sensory neuropathy unlikely as the sole cause of his problems?

Options Choose 1

- A. A positive Romberg's sign
- B. Ulceration over the heels
- C. Charcot's joints at the ankle
- D. Absent vibration sensation at the ankles
- E. Pseudoathetosis of the toes
- F. Stamping gait
- G. Absent ankle reflexes
- H. Equivocal plantar response
- I. Fasciculations

No.: 60

Fasciculations are the result of abnormal, asynchronous, spontaneous motor unit activity, and are indicative of denervation. They are seen in diseases where the motor supply to the muscle units is compromised, such as motor neuron disease and cervical spondylosis. If fasciculations were present in this individual, an alternative explanation would be suggested .

Sensory neuropathy produces absent reflexes and diminished plantar responses, as the afferent part of the reflex arc is lost; similarly in a motor neuropathy, the efferent component is lost. Romberg's sign and pseudoathetosis indicate the absence of joint position sense in the legs .

Ulceration and Charcot's joints are the result of longstanding sensory abnormalities and are especially common in diabetics .

Sensory neuropathy :

- \*Diabetes
- \*Alcohol
- \*Paraneoplastic (Anti Hu)
- \* Chronic inflammatory demyelinating polyneuropathy (CIDP)



No.: 61

A 67-year-old right-handed man, originally from Pakistan, is brought in by ambulance. He was found at home by his wife at the foot of the stairs earlier on that morning. He had been well the night before, and was dressed, indicating that he was probably leaving for work when he collapsed. He smokes 20 cigarettes a day, and was on a statin for hypercholesterolaemia .

He is conscious and responds to verbal commands. There are no obvious cranial nerve abnormalities to detect, although field-testing reveals a left inferior quadrantanopia. The power and tone appear to be normal in his arms and legs. There is some difficulty in answering basic questions, and his ability to co-ordinate himself with complex tasks appears to be impaired .

On the basis of this information, where is the lesion most likely to be?

Options

- A. Right temporal lobe
- B. Right parietal lobe
- C. Right occipital lobe
- D. Left temporal lobe
- E. Left parietal lobe

No.: 61

**B**

The deficits presented, are relatively discreet and acute. This would indicate that a lacunar infarct might be the underlying abnormality .

Parietal lobe disease can cause problems with speech, co-ordination and numeracy .

Inferior quadrantanopia occurs as a result of infarction of the optic radiation through the parietal lobe







No.: 62

A 34-year-old man complains of headaches. The episodes come on during the early hours of the morning and wake him from sleep. They are localised to the left eye, but radiate across the face. Each episode last around 10 minutes, and the pain is often severe enough to make the patient vomit. There are no visual disturbances with the headaches. He thinks that his eye goes red and waters during the episodes .

He has no past medical history and does not smoke. He drinks 10 units of alcohol per week, and rarely uses cocaine and ecstasy recreationally. There is no family history of headache .

What is the most likely diagnosis?

Options

- A. Migraine
- B. Chronic paroxysmal hemicrania
- C. Tension headaches
- D. Trigeminal neuralgia
- E. Cluster headaches

No.: 62

Cluster headaches predominantly affect men between the ages of 20 and 50. The episodes last for 10 to 30 minutes and typically come on at night, often waking the sufferer from sleep. There are clusters of episodes, so that the sufferer may be pain free for months before having another 4-5 episodes. The pain is unilateral and localises to an orbit, with radiations. On examination, during an attack, the eye of the affected site is red and tearful .

Treatment of an acute attack is by high flow oxygen, sumatriptan or intranasal lignocaine. Prophylaxis may be obtained with a single dose of ergotamine, steroids, lithium or carbamazepine .

Migraine attacks tend to last longer, and are not usually associated with unilateral autonomic disturbance .

Trigeminal neuralgia is unilateral facial pain attacks, which last for seconds at a time .

Chronic paroxysmal hemicrania is a condition whereby cluster episodes occur throughout the day. Treatment is by indomethacin.



No.: 63

A 67-year-old man has been increasingly **disorientated**. He has become increasingly irritable and prone to unprovoked outbursts of anger. He sometimes reports being worried because he can see **little people and spiders** walking around his room. He has hoarded a number of items beneath his bed, and is very suspicious of people who try to remove them. His deterioration has been gradual over the course of 4 months .

On examination, he is generally fit and well. His GCS is 14; his MMS is 9 (losing points on concentration and attention). His memory is relatively well preserved. There are no cranial nerve abnormalities, although he has a coarse resting tremor and increased tone in both arms .

On the basis of this information, what is the most likely diagnosis?

Options Choose 1

- A. Lewy body dementia
- B. Alzheimer's disease
- C. Fronto temporal dementia (Pick's disease)
- D. Vascular dementia
- E. Korsakoff's psychosis
- F. Pseudo dementia
- G. Huntington's chorea
- H. Asperger's syndrome

No.: 63

**LBD** involves early behavioural change, paranoia and visual hallucinations. There are concurrent signs of Parkinsonism. Memory is affected relatively late .

**Alzheimer's** has early memory involvement with relative preservation of language. Paranoia and mood disturbance do occur. Usually absence of associated neurological signs .

**Pick's** is a disease of the frontal lobes. Loss of inhibition and disordered affect are the initial signs. There may be primitive reflexes on examination (pout, palmomental) .

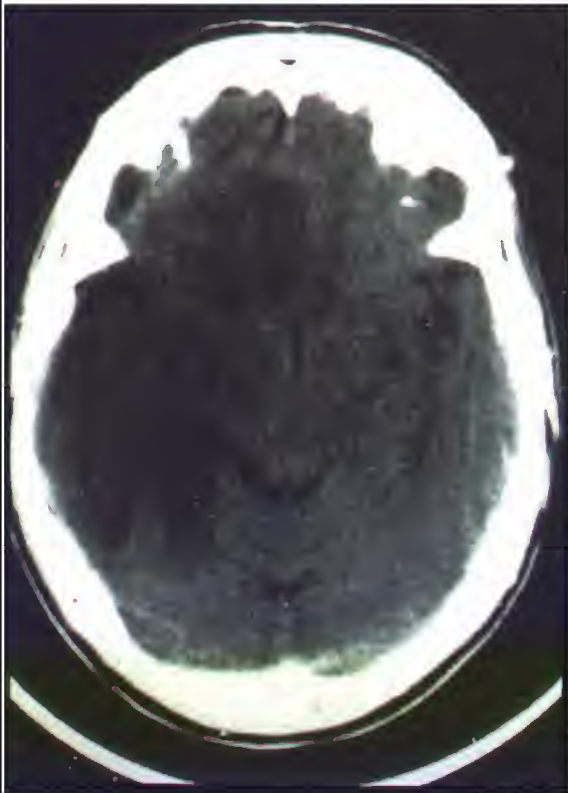
Vascular dementia is seen in the context of the **vascular risk factors**, and the progression is said to be stepwise. There may be associated extra-pyramidal disturbance and long tract signs .

Pseudo dementia is the manifestation of depression as cognitive disturbance in the elderly. There will usually be biological features of depression evident and the condition is important to pick up, as it is treatable .

**Korsakoff's** occurs in the context of thiamine deficiency, and involves near total loss of short-term memory .

**Asperger's** is a pervasive developmental disorder on the autistic spectrum.

No.: 64



A 45-year-old woman is unwell following a holiday in Spain. She returned 3 days ago, and over the last 24 hours has developed a headache. She has also become confused, and is only intermittently aware of where she is .

On examination, her temperature is 37.2 0C, pulse 98/min 156/98, GCS=8 and MMS=10. She had neck stiffness and photophobia with no other cranial nerve abnormalities. Her tone, power and reflexes are normal in all 4 limbs. Plantars are down going bilaterally. Systems examination is normal. A lumbar puncture is performed; opening pressure 22mmHg, 1 rbc, 23 wbc (lymphocytes), 1g/l protein, Glucose=4 (serum=7). An urgent CT brain is performed .

What is the diagnosis?

Options

- A. Listeriosis
- B. Legionella meningitis
- C. Herpes simplex encephalitis
- D. Herpes zoster encephalitis
- E. Cytomegalovirus encephalitis

No.: 64

C

The clinical presentation is of acute disturbance in consciousness with fever and headache; this is encephalitis. The most common viral cause is herpes simplex. The presentation usually follows this pattern, although seizures, coma, altered behaviour or long tract signs can all be the manifest feature .

The diagnosis is made by demonstrating the virus in the CSF with PCR. The CSF shows an elevated protein, normal glucose, and raised wcc (lymphocytes). EEG will show temporal lobe slowing and brain scanning reveals areas of hypo intensity over the temporal areas. Treatment is with acyclovir .

Herpes zoster encephalitis is very rare complication of cranial zoster .

Listeriosis and Legionella would produce a more meningitic picture, with elevated neutrophils and a low glucose in the CSF .

CMV encephalitis is a complication of HIV infection; it is often uncertain how this manifests clinically, as it occurs within a spectrum of other infections, HIV, itself can also present with an encephalitic picture.



No.: 65

A 65-year-old woman collapses while getting off a bus; she is brought into casualty. She is a type 2 diabetic (diet controlled) and gave up smoking 10 years beforehand .

On arrival, her abbreviated mental test score is 10/10, and GCS 13/15. Her speech is slurred, although the content is normal. There is drooping of the left eyelid with past pointing and dysdiadochokinesis on the left. Her gait is broad based. Facial sensation is diminished on the left, and her uvula is seen to deviate to the right when she opens her mouth .

On the basis of this information, where is the lesion most likely to be?

Options

- A. The left posterior inferior cerebellar artery
- B. The right posterior inferior cerebellar artery
- C. Left vertebral artery
- D. Right vertebral artery
- E. Basilar artery

No.: 65

A

The acute onset and appropriate risk factors make a vascular cause likely for this presentation .

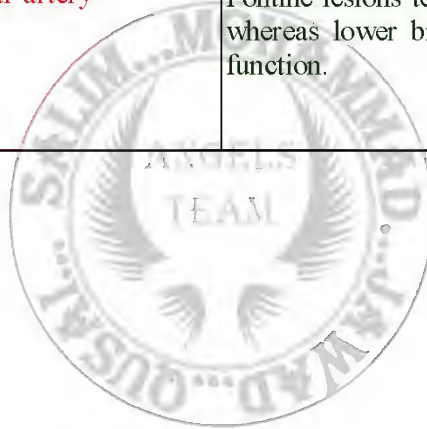
The site of the lesion is the left lateral medulla, an area supplied by the posterior inferior cerebellar artery (PICA) .

The manifestations are :

- \*Horner's syndrome
- \*Cerebellar signs
- \*Trigeminal abnormalities
- \*IX and X palsies, producing palatal weakness

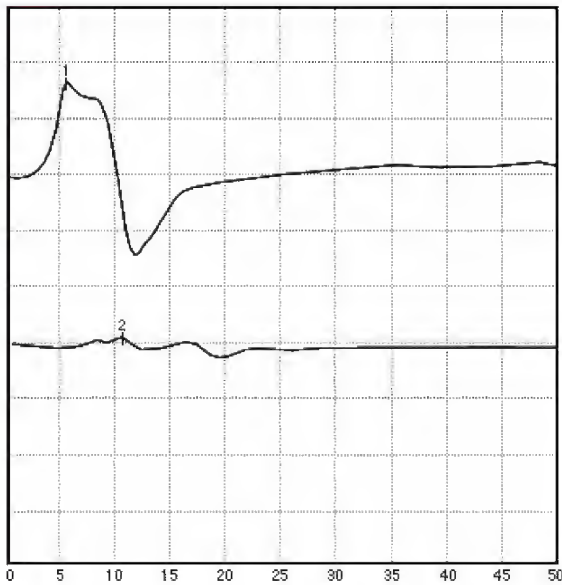
This clinical constellation is called Wallenberg's syndrome, and is brought about because of the proximity of the tracts and nuclei in this part of the brain stem .

Pontine lesions tend to produce eye movement disorders, whereas lower brain stem lesions tend to affect bulbar function.





No.: 66



A 45-year-old woman has noticed that she is **more clumsy** than usual and is having difficulty in picking up small objects. Her hands feel numb, and she has occasional **pins and needles**. Otherwise, there have been no systemic symptoms, and she is generally well. Apart from a hysterectomy 5 years beforehand, there is no past medical history. She smokes between 10 and 20 cigarettes a day, and drinks 2 or 3 glasses of wine per day.

Her mother died at the age of 56 of a stroke and her father is alive and well at the age of 74. She has 2 sisters who are well.

Nerve conduction studies for the radial nerve are shown :

- (1) The proximal trace
- (2) The trace at the elbow.

Conduction times are slow.

What is the most likely diagnosis?

Options

- A. Normal peripheral nerves
- B. Chronic inflammatory demyelinating polyneuropathy
- C. Diabetic neuropathy
- D. Paraneoplastic neuropathy
- E. Multiple sclerosis

No.: 66

B

The presenting symptoms are strongly suggestive of a peripheral neuropathy with distal motor and sensory involvement.

The nerve conduction studies show conduction block, as evidenced by the severe diminution in action potential over a relatively short course. This is a feature of chronic inflammatory demyelinating neuropathy (CIDP). This is a demyelinating condition, which affects the peripheral nerves in a progressive, chronic manner, and is sometimes responsive to intravenous gamma globulin. The conduction times are slowed, this is strongly suggestive of demyelination rather than an axonal neuropathy, such as would be found in a diabetic neuropathy. Axonal neuropathies demonstrate a reduction in amplitude of signal, with retained conduction times.

There is no history suggestive of diabetes, and paraneoplastic neuropathy would be a highly unusual presenting feature of cancer.

Multiple sclerosis is a demyelinating disease of the central nervous system and there would not be manifest abnormalities on peripheral nerve conduction studies.



No.: 67

A 34-year-old man has recently been diagnosed with myasthenia gravis. He went on holiday to Wales and forgot to take his medication with him. On his return, his condition has significantly deteriorated, and he has been intubated on ITU. Unfortunately, his admission has been significantly complicated by a chest infection, which has required numerous different antibiotics in order to treat it. During his recovery from the sepsis, he developed cardiac conduction problems, which have also been treated. He has had 2 seizure type episodes. Electrophysiological testing reveals that his myasthenia has significantly deteriorated.

Which of the following drugs is the most likely cause?

Options Choose 1

- A. Bendrofluazide
- B. Amoxycillin
- C. Digoxin
- D. Gentamicin
- E. Sodium valproate
- F. Propanolol
- G. Lactulose
- H. Azathioprine
- I. Aspirin

No.: 67

D

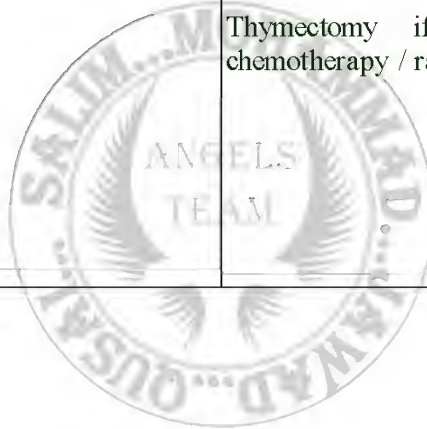
Drugs implicated in exacerbations of myasthenia gravis :

- \*Antibiotics - predominantly the aminoglycosides
- \*Prednisolone - is used to treat MG, although it may initially make the symptoms worse, therefore, it is usually initiated after pyridostigmine treatment is underway
- \*Cardiovascular - procainamide, quinidine
- \*Magnesium
- \*D-penicillamine
- \*Lithium
- \*Phenytoin

Treatment of Myasthenia Gravis :

- \*Pyridostigmine
- \*Immunosuppression (steroids/azathioprine)
- \*Plasma exchange / Intravenous immunoglobulin

Thymectomy if appropriate (may also require chemotherapy / radiotherapy).





No.: 68

A 21-year-old man is concerned because he has found it increasingly difficult to play football. He has noticed that he is becoming slower and he cannot kick the ball as hard as he used to do. He has also noticed that his legs have become a lot thinner than they used to be. He is otherwise well, and has no significant past medical history. He doesn't smoke, and rarely drinks. His parents are both alive and well. They were born in the Isle of Man and are second cousins .

On examination, there is wasting of the distal muscles on the legs. There is weakness of ankle movements, bilaterally, and the ankle reflexes are only present with re-enforcement. There are no sensory abnormalities and the rest of the neurological examination is entirely normal .

What is the diagnosis?

Options

- A. Spinal muscular atrophy
- B. Motor neurone disease
- C. Inclusion body myositis
- D. Duchenne muscular dystrophy
- E. A lumbar spine lesion

No.: 68

A

Chronic progressive symmetrical distal muscle wasting is likely to be due to SMA, a disease of the spinal and bulbar motor neurons .

Presentation may be anywhere from birth (Werdnig-Hoffmann) to late life (distal SMA). There are different sub groups although the condition is always congenital and can be either autosomal dominant or autosomal recessive .

The sensory system is spared, and the findings are typically those of lower motor neuron lesions as the whole of the motor axon is lost. Later onset forms have a basically normal life expectancy, although patients may require the use of a wheelchair in later life. The more severe types eventually cause mortality through the involvement of the respiratory muscles .

Diagnosis is by identification of the causative gene (usually on chromosome 5) .

Treatment is supportive, with close monitoring for the respiratory complications. Genetic counselling may also be appropriate .

Motor neurone disease typically produces a mixed (upper and lower) picture .

Duchenne's has onset in childhood, and affects the proximal muscles .

Inclusion body myositis is a disease of the elderly, mainly affecting the arms .

A lumbar spine lesion would give UMN signs and possibly sensory abnormalities.



No.: 69

A 65-year-old man is a long term psychiatric patient, currently managed in the community of low dose depot neuroleptics. His daughter has become concerned because he has started to chew without food .□

On examination, he is alert and orientated. There are no cranial nerve abnormalities. He repeatedly draws his lips backs and then pouts. There is mildly increased tone in all 4 limbs, although examination is otherwise normal .

What are the abnormal movements?

Options Choose 1

- A. Tics
- B. Chorea
- C. Athetosis
- D. Tardive dyskinesia
- E. Myoclonus
- F. Dystonia
- G. Akathisia
- H. Parkinsonism
- I. Benign essential tremor

No.: 69

D

Abnormal repetitive involuntary movements of the face as a result of chronic neuroleptic use are called tardive dyskinesia .

Athetosis is writhing movements of the limbs .

Dystonia is an abnormal involuntary increase in muscle tone or change in posture .

Chorea is rapid, jerky uncoordinated involuntary movements .

Akathisia is a side effect of neuroleptics, it is repetitive involuntary movement of the extremities .

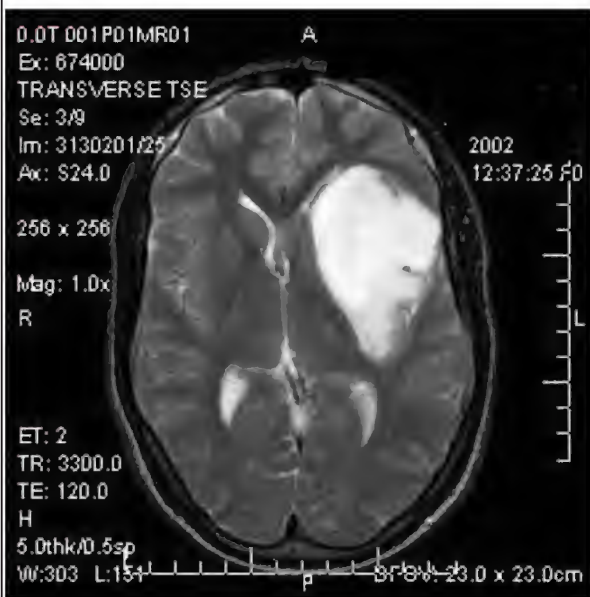
Tics are rapid non-rhythmic movements under semi-purposeful control .

Myoclonus is a brief burst of jerky muscle contractions .

Other neuroleptic induced movement disorders include Parkinsonism and an acute dystonic reaction.



No.: 70



A 44-year-old Italian business man is at home when he suffers a seizure. His wife, who witnessed the attack, said that he fell to the ground and his right arm and leg were jerking for around 5 minutes. He bit his tongue during the attack, but was not incontinent. He had been complaining of a headache for 3 days prior to this .

Now his GCS is 7/10. Temperature is 36.50C; Pulse is 90/min and BP 135/98. Pupils are equal and reactive. There is disc blurring in the left fundus. He is not moving his right side, and his reflexes are brisk in the arm and leg on that side. His plantar is up going on the right. It is difficult to examine power and the sensory system because he is somewhat confused .  
What is the initial management of choice?

Options

- A. Administration of broad spectrum antibiotics
- B. Administration of thrombolytic agent
- C. Administration of mannitol
- D. Administration of dexamethasone
- E. Emergency radiotherapy

No.: 70

D

The scan shows a glioblastoma. This is the most common form of malignant brain tumour in adults (a meningioma is the most common benign form. On scanning it has a heterogeneous appearance and an irregular border. The scan shows a mild degree of mid line shift, although the clinical findings suggest that the lesion is exerting a pressure effect .

An abscess may present in a similar manner, although this is typically a ring enhancing lesion rather than a solid mass .

It would be very unusual for a cerebrovascular accident to cause a mid line shift, although sometimes large infarcts may produce oedema locally, and can present in the manner with a seizure. The infarct would be wedge shaped on a scan, and would not have irregular edges or a heterogeneous appearance .

Glioblastomas have a poor prognosis. The initial management should be aimed at reducing the intracranial pressure, and dexamethasone is the most appropriate agent to use in this context .

Although radiotherapy may be appropriate in the longer term, this requires suitable planning sessions and is not appropriate acutely.



No.: 71

A 25-year-old man, originally from Barbados, is referred with difficulty swallowing. His problems came on 2 weeks beforehand while he was at home eating his breakfast. At the same time his voice became slurred and indistinct. He is otherwise well, and denies any recent weight loss or other changes. He is a non smoker and works in a warehouse .

On examination, he is generally well with normal cardiovascular, abdominal and respiratory examination. There is palatal weakness bilaterally, and his tongue is small and cannot protrude. Jaw jerk is exaggerated, and his speech is ♦nasal♦ in character with a normal content. On taking a glass of water, the fluid comes up through his nose .

What is the investigation of choice?

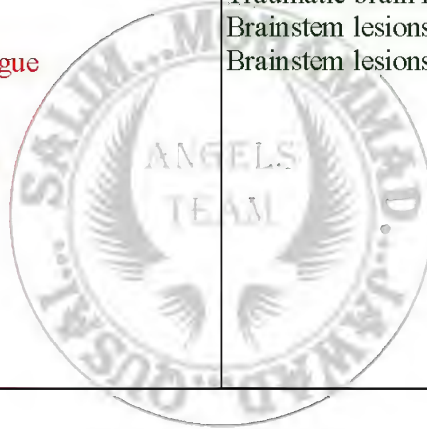
Options Choose 1

- A. Nerve conduction studies of the tongue
- B. Lumbar puncture
- C. EEG
- D. Peripheral nerve conduction studies
- E. MRI of the brainstem
- F. CT of the brain
- G. Muscle biopsy
- H. Visual evoked potentials
- I. MRI of the cervical spine

No.: 71

**E** Small, spastic tongue, dysarthria, nasal speech, fluid regurgitation, brisk jaw jerk and drooling are signs of pseudobulbar palsy. This is an upper motor neuron lesion of the brainstem which affects the cranial nerves (IX, X, XI, XII) which arise in this area. This contrasts with a bulbar palsy, which is a lower motor neuron condition affecting the nerves or muscle involved with speech and swallowing. This will also present with nasal speech and dysphagia, but the tongue will be flaccid rather than spastic, and the jaw jerk will be absent. Emotional lability is said to occur with a pseudobulbar, but not a bulbar palsy .

- Pseudobulbar Palsies Bulbar Palsies
- Motor neuron disease Motor neuron disease
- Multiple sclerosis Syringobulbia
- CVA Guillain-Barre
- Traumatic brain injury Polio
- Brainstem lesions (inflammatory) Basal meningitis
- Brainstem lesions (neoplastic) Neurosyphilis





No.: 72

A 31-year-old woman wakes up on Sunday morning with pain and weakness in the left arm. She was at a party the previous night, and had fallen asleep in the living room of a friend's house. She cannot remember at what time she fell asleep, or what she was doing towards the end of the evening. She is otherwise generally well, and has not had similar problems in the past. There is no family history of disorders of the peripheral nerves .

On examination, she has an absent triceps jerk on the left as well as an area of sensory loss over the dorsum of the middle finger on the left hand. Finger and wrist extension is weak .

Which lesion would explain the neurological signs in her left upper limb?

Options

- A. C8 root lesion
- B. Ulnar nerve palsy
- C. Median nerve palsy
- D. T1 root lesion
- E. Radial nerve palsy

No.: 72

E

Peripheral nerve lesions :

\*Radial nerve - Weakness of wrist and elbow extension, triceps jerk, sensory supply to dorsal surface of middle finger only .

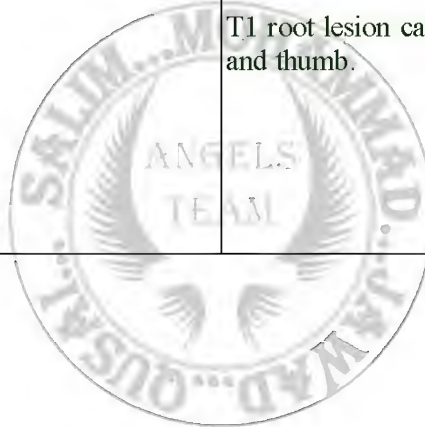
\*Median nerve - Flexion, abduction and opposition thumb, sensory supply to medial palmar surface and lateral 2 and a half fingers .

\*Ulnar nerve - Small muscle of the hand, medial hand and 1 and a half fingers sensory supply .

\*Common peroneal nerve - Weakness of foot inversion, dorsiflexion and eversion, sensory supply to the dorsum of the foot is affected .

A C8 root lesion would affect the small muscles of the hand and thumb and triceps jerk, but not cause wrist drop .

T1 root lesion causes weakness of small muscles of hand and thumb.



No.: 73



What is the most likely diagnosis?

Options

- A. Left middle cerebral artery haemorrhage
- B. Right middle cerebral artery haemorrhage
- C. Left middle cerebral artery infarct
- D. Left anterior cerebral artery infarct
- E. Left anterior cerebral artery haemorrhage

No.: 73

C

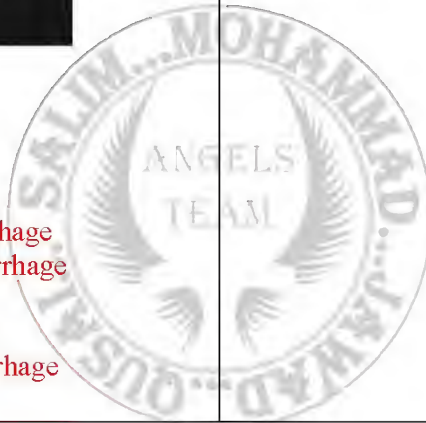
Low density (black) - oedema

Not high density (white) ♦ not blood

MCA territory

Midline shift

Left lateral ventricle effaced







No.: 74

A 43-year-old woman has been complaining of a three week history of headache. The episodes tend to come on spontaneously, at any time of the day. The pain is unilateral, **throbbing**, and lasts for around an hour, before it goes. There is no response to paracetamol. Her husband reports that she seems to be unusually irritable prior to the onset of the episodes .

At the age of 32 she was in a car accident, and sustained a minor head injury and a broken leg. She is on no regular medications, and is allergic to iodine based compounds. On direct questioning, she thinks that her mother suffered from similar episodes, although she died at the age of 62 from a heart attack. Her father is alive and well at the age of 77 .

Which of the following two features would make migraine the most likely diagnosis?

Options Choose 2

- A. Precipitation by stress
- B. Prevention by amitryptilline
- C. Associated eye watering on the same side of the head
- D. Visual loss associated with the headache**
- E. Precipitation by alcohol
- F. Vomiting during the attacks
- G. Seizures
- H. Positive family history
- I. Fever associated with the attacks
- J. Episodes persisting for days at a time

No.: 74

**D H**

Migraine has been described in **common** and **classical** variants. The main difference being that the classical type involves a visual aura. This may be flashing lights, field changes or even visual loss .

Location: Migraine is usually unilateral, although the same is true of cluster headaches. These last for minutes at a time and are characterised by an associated localised autonomic disturbance .

Duration: Typically resolve within hours of onset. Tension headaches tend to last for longer periods of time, while cluster headaches are much shorter. Headaches associated with underlying raised intracranial pressure are persistent .

Precipitants: Migraine usually occurs without precipitant, although alcohol, bright lights and certain odours are sometimes implicated. Precipitants are not exclusive to migraine, however .

Treatment: Ergotamine, NSAIDS, sumatriptan acutely. Propanalol and amitryptilline in prophylaxis. Ergotamine and propanolol are also used in the treatment of cluster headaches .

Associated features: The unusual ophthalmic manifestations include visual symptoms, ptosis and ophthalmoparesis. Rarely abdominal pain, diarrhoea and vertigo have been reported. Seizures or fever suggest a more sinister cause. Vomiting also occurs with headaches due to raised intracranial pressure.



No.: 75

A 46-year-old woman is referred for assessment. She was recently sacked from her job in a laundry for repeated arguments with her co-workers. She reports being emotionally up and down over the past few months. She has stopped speaking to her daughter, who lives abroad, following a row about Christmas arrangements.

Her husband divorced her 4 years ago and she lives alone in a first-floor flat. She smokes 20 cigarettes a day, but she doesn't drink because she reports that it drove her father mad (she was taken into care at an early age). She is on an inhaler for airway disease, but this has been reasonably stable, and she has never been admitted to the hospital with it.

On examination, she constantly fidgets, with occasional twitches in her fingers. She blinks repeatedly and sometimes screws up her face for no particular reason. Once every few minutes she brings both of her hands up above her head.

Cognitive examination reveals generally poor verbal skills and diminished concentration and attention with relative preservation of memory.

Neurological examination is otherwise normal apart from difficulty in initiating voluntary movements. You note that she is unable to suppress her involuntary movements.

What is the most likely diagnosis?

Options

- A. Parkinson's disease
- B. Multiple sclerosis
- C. Huntington's chorea
- D. Progressive supranuclear palsy
- E. Wilson's disease

No.: 75

NOT

The presentation is of a degenerative disorder producing progressive personality change and dementia with a movement disorder. Cognitive disturbance can have an insidious onset with mild deterioration in function occurring over months. The movements described are chorea – semi-purposeful movements that cannot be suppressed (contrasted with tics which are suppressible). Onset of movement disorder in Huntington's is usually after the onset of the cognitive disturbance. Blink frequency is also increased; this contrasts with Parkinsonism, where blink frequency diminishes.

Huntington's chorea is an autosomal dominant disease due to a trinucleotide repeat expansion. This means that the disease demonstrates anticipation (the phenomenon whereby severity of disease increases in subsequent generations).

Wilson's disease tends to occur at an earlier age. It is an autosomal recessive disorder of copper metabolism resulting in liver disease, psychiatric disturbance and movement disorder.

Progressive supranuclear palsy is a Parkinson-like disease with associated oculomotor disturbances.



No.: 76

A 54-year-old man is referred for assessment. He has found it increasingly difficult to walk, and he has fallen on a number of occasions. His family are concerned because they feel that he is not the man he used to be, reporting that he is withdrawn and displays little emotional involvement.

On examination, his face is expressionless. There are normal eye movements, and his higher mental function is grossly intact.

He has a pill-rolling tremor of the right hand, and increased tone with bradykinesia in both arms. Reflexes are normal, and power is unaffected.

Tone appears to be increased in the legs, with normal power and reflexes. His plantars are down going. His gait is slow, with a stooped posture, and reduced arm swing on the right.

Which of the following are true of treatment of this man's condition?

Options Choose 2

- A. Apomorphine is a useful oral agent
- B. Levodopa may not produce a response in early disease, even in higher doses
- C. Dopamine agonists are used as first line agents
- D. Pramipexole is associated with insomnia
- E. A lack of response to one class of dopamine agonist indicates a general insensitivity to this class of drugs
- F. Selegiline is a safe agent in elderly patients with falls
- G. Selegiline is a monoamine oxidase type A inhibitor
- H. Amantadine is a useful treatment for dyskinesia
- I. Controlled release preparations of levodopa must always be taken with food
- J. Tolcapone is licensed in the UK, but not in the US

No.: 76

C H

The first line treatment of Parkinson's disease is levodopa, administered with a dopa-decarboxylase inhibitor in preparations such as sinemet or madopar. Levodopa acts to increase synaptic dopamine concentrations. The main side effects include confusion, nausea and unpredictable effects later in the disease.

A lack of response to higher doses of levodopa in early disease indicates that Parkinson's may be the wrong diagnosis. Some practitioners would suggest taking it with food, although this is not an absolute requirement.

There are a number of dopamine agonists available. They include ropinirole (which is associated with lung fibrosis) and pramipexole (which may cause sleep attacks). The dopamine agonists have different profiles of activity; therefore, patients may respond to different types. They are generally used either as initial therapy or levodopa-sparing agents. Side effects include postural hypotension, nausea and confusion. Apomorphine is a dopamine agonist, which is given subcutaneously. It can be given as a continuous infusion, although there is a risk of haemolytic anaemia.

Selegiline is an MAO type B inhibitor. Therefore, it should not be given with the SSRI antidepressants. It has an amphetamine-like effect, and is generally not given to elderly people at risk of falls.

Tolcapone and entacapone are COMT (catechol-O-methyltransferase) inhibitors. Tolcapone is not licensed in the UK due to reports of liver damage following its use.





No.: 77

A 34-year-old Nigerian woman was diagnosed with HIV around 8 years ago. She was commenced on appropriate retroviral treatment and has remained well until around 4 weeks ago. Her partner informs you that she stopped taking her treatment 2 months ago, and has generally been poorly compliant over the past year or so.

On examination, she appears to have significant cognitive problems with impaired concentration and short-term memory loss. Her language is also affected, with poor fluency and form.

General examination is entirely normal, apart from some increased tone in her legs.

Which of the following diseases would be least likely to present in this way, in this patient?

Options

- A. Cerebral toxoplasmosis
- B. AIDS dementia complex
- C. Acute disseminated encephalomyelitis
- D. Primary CNS lymphoma
- E. Herpes simplex

No.: 77

There are many neurological complications of HIV illness:

Peripheral Nervous System:

- \*Herpes Zoster
- \*CMV polyradiculopathy
- \*HIV polyneuritis
- \*Drug-related neuropathies
- \*Myopathies

Central Nervous System:

- \*AIDS dementia complex
- \*Viral encephalitis (CMV, HSV, HZV)
- \*Toxoplasmosis
- \*CNS lymphoma
- \*Progressive multifocal leucoencephalopathy
- \*Brain abscess/TB
- \*Meningitis

Acute disseminated encephalomyelitis is an acute demyelinating illness which may be a post infective autoimmune phenomenon.

No.: 78

A left handed, 46-year-old man is admitted to hospital acutely, having been found at home by his wife wandering about in the garden in a state of some confusion. He is a heavy smoker, and was diagnosed with type 2 diabetes 3 years ago. He is on glibenclamide.

On examination, he has a mixed receptive and expressive dysphasia, weakness of the left leg with some sensory loss to light touch and pin prick over the left leg and shoulder. Cranial nerves and pupils are entirely normal to examination.

Where is the lesion?

Options

- A. Left anterior cerebral artery
- B. Left middle cerebral artery
- C. Right anterior cerebral artery
- D. Right middle cerebral artery
- E. Right basilar artery

No.: 78

The presentation, here, is of an infarct which has affected the dominant hemisphere (speech being affected). This could be due to a blockage in the middle or anterior cerebral artery. It is less likely to be in the middle cerebral artery as usually complete hemiplegia results with the face and arm being affected as well.

Superior MCA lesions usually spare the leg and produce gaze palsy and spatial neglect.

Inferior MCA lesions usually produce visual field defects.





No.: 79

A 65-year-old, right-handed Afro-Caribbean man is admitted as an emergency, with right-sided weakness. He is known to be hypertensive, and on diet control for type 2 diabetes. A CT scan carried out 2 days later reveals a large ischaemic infarct in the territory of the left middle cerebral artery. His blood pressure and glycaemic control are stabilised, and he improves over the next few days.

On investigation of his stroke, it is found that he has an 80% stenosis in the left internal carotid artery and a 50% stenosis on the right. Echocardiogram shows mild left ventricular hypertrophy. He is in sinus rhythm.

Which two of the following are appropriate in the further management of this patient?

Options Choose 2

- A. Conservative management of carotid artery disease is appropriate
- B. Referral for surgery on both carotids to ensure good collateral circulation is required
- C. He should be placed on warfarin as soon as possible
- D. He should be placed on warfarin when a decision is reached on his carotid arteries
- E. An endarterectomy is appropriate for the left carotid artery
- F. In view of his improvement, he should be allowed to eat and drink normally
- G. He should be restricted to fluids only
- H. Surgical intervention is of no more benefit than medical treatment
- I. Success of an endarterectomy is independent of the level of experience of the operating surgeon
- J. Aspirin is a reasonable interim measure pending surgery.

No.: 79

E J

There is a large body of evidence that suggests that a carotid stenosis of more than 70% is an appropriate indication for endarterectomy, if the patient is symptomatic. In a completed stroke, there would have to be a recovery period before surgery could be carried out. In the setting of a transient ischaemic attack, the treatment of carotid stenosis is important in reducing the risk of further episodes. In the setting of acute ischaemic stroke without valvular disease or rhythm disturbances, warfarin is not indicated. Aspirin is appropriate, however, clopidogrel can be used where patients are intolerant of aspirin. Patients with atrial fibrillation or valve abnormalities are candidates for formal anticoagulation. Patients who develop ischaemic strokes after an MI are also candidates. Guidelines suggest that antiplatelet therapies such as aspirin should not be stopped prior to carotid surgery or immediately afterwards.

Swallowing problems accompany dysphasia, and close liaison with speech and language therapists is important in instituting oral nutrition.



No.: 80

A 67-year-old retired woman complains of generalised and increasing weakness. This has come on over the last few weeks since she returned from a holiday in Spain. She has found it increasingly difficult to climb stairs and get up out of her chair. She is a lifelong non-smoker, and doesn't drink. She has a past history of irritable bowel syndrome and sometimes takes paracetamol for osteoarthritis. There are no sensory abnormalities to detect.

On examination, which of the following features would make a myopathic process much more likely than a motor neuropathy as a cause of her weakness?

Options

- A. Predominantly distal pattern of weakness
- B. Muscle wasting
- C. Associated pain
- D. An ascending pattern of weakness
- E. Maintained limb reflexes

No.: 80

E

Feature	Neuropathy	Myopathy
Distribution	Distal	Proximal
Pain	Possible	Possible
Reflexes	Lost	Retained
Atrophy	Present	Usually absent
EMG	Fibrillations	Small motor units
CK	Normal	Increased
Cranial nerves	Usually spares	Sometimes involved
Muscle biopsy	Group atrophy	Necrosis





No.: 81

A 46-year-old woman develops problems with her speech. She has noticed that her voice has a nasal quality to it; she has also noticed that fluids are coming back up through her nose when she drinks. She has had some difficulty lifting her shopping bags .

On examination, there is weakness and wasting of the distal muscles of the arms. Reflexes are brisk. Examination of the legs reveals a general increase in tone with brisk reflexes and up going plantars, with no other abnormalities. Sensory examination is difficult, but there may be some loss of light touch in her arms. The tongue is weak and speech and language assessment suggests the presence of swallowing difficulties .

What are the two most likely diagnoses?

Options Choose 2

- A. Multifocal motor neuropathy with conduction block
- B. Myasthenia gravis
- C. Chronic inflammatory demyelinating polyneuropathy
- D. Multiple sclerosis
- E. Motor neuron disease
- F. Syringomyelia
- G. Pancoast's tumour
- H. Lead toxicity
- I. B12 deficiency
- J. Neurosarcoidosis

No.: 81

E F

A pseudobulbar palsy in association with spastic weakness of the muscles and a mixture of upper and lower motor neuron signs are strongly suggestive of motor neuron disease .

Syringomyelia would also produce a bulbar palsy in conjunction with distal hand weakness and upper motor neurone signs in the legs. Sensory weakness would usually occur with a syrinx, and would usually be absent with MND, but the findings are not always clear-cut .

The peripheral neuropathies would not produce swallowing difficulties and up going plantars. Similarly, the up going plantars are not readily explained by myasthenia gravis, which would also have a more variable progression, and usually affect the eyes .

Multiple sclerosis is a disease of the central nervous system alone, and so would not produce distal weakness of the hands .

The prognosis is poor in motor neuron disease, and death usually occurs within 5 years of onset. Pathological degeneration occurs in the anterior horn cells, which is why there is a combination of upper and lower motor neuron signs .

Syringomyelia is caused by the formation of an abnormal fluid-filled cavity in the spine. This usually produces a dissociated sensory loss in the upper limbs with preserved vibration and joint position sense .





No.: 82

A man suffers from a skiing accident while on holiday. He has some pain in his right arm, and later notices that the arm is weak. On examination, he has an absent triceps jerk on the right as well as an area of sensory loss over the dorsum of the middle finger on the right hand. Finger and wrist extension is weak .

Which lesion would explain the neurological signs in his right upper limb?

Options

- A. C8 root lesion
- B. Ulnar nerve palsy
- C. Median nerve palsy
- D. T1 root lesion
- E. Radial nerve palsy

No.: 82

E

Peripheral Nerve lesions :

\*Radial Nerve ♦ Weakness of wrist and elbow extension, triceps jerk, sensory supply to dorsal surface of middle finger only

\*Median nerve ♦ Flexion, abduction and opposition thumb, sensory supply to medial palmar surface and lateral 2 and a half fingers .

\*Ulnar nerve ♦ small muscle of the hand, medial hand and one and a half fingers sensory supply .

\*Common peroneal nerve ♦ Weakness of foot inversion, dorsiflexion and eversion, sensory supply to the dorsum of the foot is affected .

A C8 root lesion would affect the small muscles of the hand and thumb and triceps jerk, but it would not cause wrist drop .

T1 root lesion causes weakness of small muscles of hand and thumb.

No.: 83

A 43-year-old plumber has developed weakness of the hands over the course of 3 months .

On examination, he has absent biceps and triceps jerks in both arms. Proximal power is normal, but there is significant weakness about both wrists and the small muscles of both hands are affected .

Which two of the following features would favour a diagnosis of a multifocal motor neuropathy rather than chronic inflammatory demyelinating polyneuropathy?

Options Choose 2

- A. Multiple areas of motor conduction block on nerve conduction studies
- B. The presence of anti-Yo antibodies
- C. An elevated CSF protein on lumbar puncture
- D. Up going plantars
- E. Delay in sensory conduction
- F. Muscle wasting
- G. Fibrillations
- H. Abnormal brachial plexus appearance on MRI scanning
- I. Symmetrical weakness
- J. Anti-GM1 antibodies

No.: 83

A J

Chronic inflammatory demyelinating polyneuropathy (CIDP) and multifocal motor neuropathy (MMN) are two of the commonest types of peripheral neuropathy. Sensory involvement does not occur in MMN, but when sensory changes are absent from the clinical picture of CIDP, it makes the diagnosis difficult.

Feature	CIDP	MMN
Anti GM1 antibodies	No	Yes
Weakness	General, symmetrical	Distal, asymmetrical
Sensory involvement	Yes	No
Conduction block	Yes	Yes ♦ focal motor
MRI Plexus abnormalities	Yes	No
CSF Protein elevate	es	No





No.: 84

A 12-year-old girl has difficulty hearing. She is diagnosed with sensorineural deafness. She has also developed ataxia, and is generally clumsy. On three occasions, she has suffered with grand mal seizures, which terminated spontaneously.

On examination, she is below the 25th percentile for height, although her weight is normal. Fundoscopy shows a pigmentary retinopathy. There is evidence of a peripheral neuropathy with no muscle wasting. Reflexes are sluggish. Her mother has a similar pattern of signs, although her father is normal, neurologically.

Which of the following genetic tests is likely to be of most use in establishing a diagnosis?

Options

- A. Mitochondrial DNA sequencing
- B. Triplet repeat detection
- C. Sequencing chromosome 21
- D. RNA analysis
- E. Sex chromosome analysis

No.: 84

A

Mitochondrial disorders may present in many different ways, they are diseases resulting from mutations in the mitochondrial genome. They are typically multi-system disorders with a complex group of features. They are maternally inherited (no mitochondrial DNA from the father). The disorders often involve short stature, deafness, generalised weakness and lactic acidosis.

They often do not fall into a single diagnostic category; recognised subtypes do exist, however. They include:

\*Kearns-Sayre syndrome - Ophthalmoplegia, pigmentary retinopathy, cardiac conduction block ♦ may have ataxia NB ♦ sporadic inheritance

\*Neuropathy, ataxia, retinitis pigmentosa (NARP) - Ataxia, peripheral neuropathy

\*Myoclonus epilepsy with red ragged fibres (MERRF) - Seizures, myoclonus, ataxia ♦ may have peripheral neuropathy

\*Mitochondrial encephalopathy, lactic acidosis and stroke like episodes (MELAS) - Hemiparesis, headache, cortical blindness ♦ may have seizures and ataxia

\*Leber's hereditary optic neuropathy ♦ Blindness, ataxia, peripheral neuropathy



No.: 85

An 11-year-old Iranian girl is referred because of difficulty in walking. Over the last year, she has become increasingly unsteady. Her father has also noticed that her speech is sometimes slurred and difficult to understand. She had a normal birth and reached her early milestones. Her academic performance has been reasonable, and she has not had any major illnesses in the past. She has one brother who is 13 years old and is well. Her parents are second cousins. They are both well.

On examination, the patient has nystagmus in all directions and a scanning dysarthria. Visual acuity and cognitive examination are normal. Fundoscopy reveals some pallor of her optic discs. There is some past pointing in both arms. Tone and power are normal, although reflexes are moderately brisk in both arms. Examination of her legs reveals areflexia, and sensory loss to all modalities to the knees, as well as pes cavus. There is a notable kyphosis of the spine. She has a broad based ataxia.

Which of the following are the two most likely diagnoses?

Options Choose 2

- A. Spino-cerebellar ataxia type 1
- B. Spino-cerebellar ataxia type 2
- C. Spino-cerebellar ataxia type 3
- D. Ataxia telangiectasia
- E. Vitamin B12 deficiency
- F. Ataxia with vitamin E deficiency
- G. Friedreich's ataxia
- H. Acanthocytosis
- I. Wilson's disease
- J. Muscular dystrophy

No.: 85

F G

Friedreich's ataxia- Congenital disorder comprising of kyphoscoliosis, ataxia, sensory loss and areflexia, cardiomyopathy, diabetes, cerebellar signs, and optic atrophy. Autosomal recessive inheritance due to trinucleotide repeat sequences. Therefore, demonstrates anticipation, whereby there is increasing severity in successive generations.

Spino-cerebellar ataxias (SCA) - Trinucleotide repeat disease, but are autosomal dominant. Over 15 different types are recognised. All consist of a combined spinal degeneration with cerebellar disorder. The main 3 types are:

\*SCA 1: Gait ataxia, nystagmus, onset teens

\*SCA 2: Cognitive impairment

\*SCA 3: Spasticity, extrapyramidal features, neuropathy

In this question, the diagnosis cannot be SCA as both parents are normal.

Ataxia Telangiectasia- Onset first year of life. Ataxia, movement disorders and dystonias seen. Telangiectasia and atypical infections. AR.

Ataxia with vitamin E deficiency- Has a similar presentation to Friedreich's ataxia. Cases secondary to intestinal malabsorption in early childhood are also recognised.

The other items are not associated with skeletal abnormalities or the particular association of spinal, cerebellar and retinal abnormalities.



No.: 86

A patient with known myasthenia gravis visits his general practitioner. He has noticed a significant deterioration in his disease over the past few weeks. His weakness seems to be becoming more pronounced earlier in the day, and his eyes are significantly worse than usual. He has had a number of minor medical problems recently, including an eye infection, which cleared up with topical ointment, and a respiratory tract infection. He is also treated for gout and hypertension. The GP takes a detailed history .

Which of the following medications would be most likely to have caused a deterioration of his disease?

Options

- A. Diuretics
- B. Tobramycin
- C. Colchicine
- D. Propanolol
- E. Amlodipine

No.: 86

B

Myasthenia gravis is an autoimmune disorder that is caused by antibodies to the acetylcholine receptors at the neuromuscular junction. Presentation is usually with insidious weakness and ophthalmoplegia, although the muscles of speech and swallowing may be affected. A number of drugs are known to worsen myasthenia gravis, and some care needs to be exercised in prescribing for these patients .

Groups include :

\*Aminoglycosides (including tobramycin which is sometimes used topically)

\*Quinidine

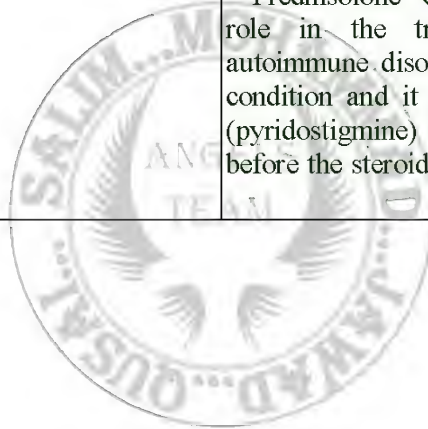
\*Procainamide

\*Magnesium

\*Lithium

\*Phenytoin

\* Prednisolone ♦ Although steroids have an important role in the treatment of myasthenia and other autoimmune disorders, they can initially exacerbate the condition and it is important that an anticholinesterase (pyridostigmine) is given at the same time or started before the steroids.





No.: 87

A 19-year-old art student has been having difficulty in his classes. He has noticed that late in the afternoons, he has trouble focussing on what he is supposed to be doing, and sometimes sees double. He says that the symptoms are worse when he is tired .

On examination, he has a bilateral ptosis, more pronounced on the left than the right. There is some limitation of horizontal gaze bilaterally. His voice is quiet and ♦nasal♦ in quality. Examination of his limbs reveal normal tone and reflexes but some weakness in the hips and the shoulder bilaterally. Sensory examination is normal for all modalities .

Which two of the following tests are most likely to be of use in making a diagnosis?

Options Choose 2

- A. Nerve conduction tests
- B. Lumbar puncture
- C. Tensilon test
- D. Chest X-ray
- E. Botulinum toxin assay
- F. Anti-acetylcholine receptor antibodies
- G. Muscle biopsy
- H. Serum lactate
- I. Nerve biopsy
- J. MRI spine

No.: 87

C F

The history and presentation are typical for myasthenia gravis .

Disorders of the neuromuscular junction (NMJ) will produce weakness that is mainly proximal. Extraocular muscles are often involved early on in the course of the disease. Nerve conduction studies would not differentiate the cause of a NMJ disorder, as they will almost certainly be normal .

The three important NMJ disorders are :

\*Myasthenia

\*Eaton-Lambert Myasthenic Syndrome (LEMS): paraneoplastic, usually associated with small cell carcinoma of the lung. Antibodies to presynaptic calcium channels rather than acetylcholine receptors. Power increases with repetitive stimulation, rather than decreases as is the case with myasthenia .

\*Botulism: Affects bulbar muscles. Usually a history of exposure, diagnosed by demonstration of toxin. May require ITU support .





No.: 88

A 61-year-old man has had increasing difficulty in his job as a school caretaker. He cannot lift items down from high shelves, nor can he lift his bucket from the floor. He says that he has been feeling generally quite run down and he saw his general practitioner the week before for low mood .

On examination, cranial nerves and higher mental function are normal. Examination of the limbs reveals mild proximal weakness of the shoulders. An EMG and nerve conduction studies are performed. The neurophysiology report states :

□ Nerve conduction tests are basically normal with some mild attenuation of the F waves. However, there is reduced amplitude and duration of motor units, with some minor spontaneous activity . □

On the basis of this information, what is the most likely diagnosis?

Options

- A. Polymyositis
- B. Myotonia dystrophia
- C. Myasthenia gravis
- D. Chronic inflammatory demyelinating polyneuropathy
- E. Lambert-Eaton myasthenic syndrome (LEMS)

No.: 88

A

Nerve conduction would be abnormal in chronic inflammatory demyelinating polyneuropathy, with severe F wave disturbance and evidence of demyelination .

Electromyographic Abnormalities :

\*Myasthenia gravis ♦ Diminished response to repetitive electrical stimulation, so that muscle activity declines as acetylcholine levels diminish .

\*Lambert-Eaton myasthenia ♦ Improved response to repeated stimulation .

\*Myotonia dystrophia ♦ High frequency action potentials, once initiated, these tail off in a decrescendo pattern .

\*Polymyositis ♦ Reduced amplitude and duration of motor units .

\* Motor neuron disease ♦ Spontaneous fibrillation due to loss of motor neuron activity



No.: 89

A 14-year-old girl is referred for investigation of weakness. She has noticed that when she plays netball she is finding it difficult to shoot and pass high balls. Her friends have noticed that her face looks blank, and her expression appears not to change as it previously did. She is otherwise well, although she had her appendix taken out as a young girl. She has reached all her developmental milestones normally, and is planning to take 9 GCSE examinations. Her mother is fit and well, although her father left when she was 3.

Cranial nerves are normal, although she has some difficulty pursing the lips. Examination of her limbs reveals that she has normal tone and reflexes with some weakness proximally in the shoulders. There are no sensory abnormalities.

Which of the following are the two most likely diagnoses?

Options Choose 2

- A. Scapuloperoneal dystrophy
- B. Duchenne's muscular dystrophy
- C. Oculopharyngeal muscular dystrophy
- D. Facioscapulohumeral dystrophy
- E. Myasthenia gravis
- F. Limb-Girdle dystrophy
- G. Emery-Dreyfus muscular dystrophy
- H. Becker's muscular dystrophy
- I. Motor neuron disease
- J. Progressive external ophthalmoplegia

No.: 89

D F

The muscular dystrophies are a group of inherited primary muscle disorders. The pattern of involvement of muscles, sex of the patient and age of onset usually give the diagnosis.

\*Facioscapulohumeral ♦ Autosomal dominant or recessive. Onset in early adulthood. Weak musculature of face and around shoulders. Normal life expectancy.

\*Duchenne's ♦ X-linked disease which presents in early childhood with proximal weakness of limbs. There is almost always relentless progression with death in early 20s. May have cardiomyopathy with intellectual involvement. Elevated creatinine kinase is found in sufferers and carriers.

\*Becker's ♦ Similar type of disease to Duchenne's muscular dystrophy, but life expectancy is longer.

\*Emery-Dreyfus ♦ X linked disorder associated with contractures of the upper limbs, otherwise similar to Becker's.

\*Oculopharyngeal - Autosomal

\*Limb-girdle ♦ Autosomal recessive. Presents in teens with proximal weakness. Life expectancy unchanged as is IQ. Can have cardiac involvement.

\*Scapuloperoneal ♦ Affects the proximal muscles of the upper limbs and distal lower limbs. May be associated with sensory changes. Autosomal dominant.

\*There are a number of other rare forms with onset in infancy.

\*Progressive external ophthalmoplegia is a mitochondrial disease that is restricted to the extraocular muscles.



No.: 90

A 43-year-old journalist was brought into hospital by ambulance. Apparently, he was out drinking with his friends when he collapsed to the ground and had twitching of all 4 limbs with urinary incontinence and tongue-biting. He was well before this, although he had complained of headache over the past 4 days. His wife comes to the department and tells you that she thinks he has not been himself lately. His walking has changed and he has become more impulsive and aggressive .

The following day he recovered. A CT scan shows a large, peripheral, homogenous mass with a smooth encapsulated border, which has not caused midline shift, in the anterior right cerebral hemisphere .

What is this most likely to be?

Options

- A. Oligodendroma
- B. Medulloblastoma
- C. Glioblastoma
- D. Meningioma
- E. Metastatic disease

No.: 90

D

The fact that the initial presentation is with a seizure is unusual for a meningioma, although the fact that the patient was out drinking means that another aetiology could be considered for the fits. The CT appearances of a meningioma are fairly typical. Metastatic lesions are not usually single, and are not homogenous .

Primary brain tumours in adults :

\*Glioblastoma ♦ Heterogeneous, irregular appearances on scanning. Has a rapid progression. Often presents with focal signs and symptoms .

\*Meningiomas ♦ May be present for years, occur peripherally or in the parasagittal region or olfactory groove .

\*Pituitary adenomas ♦ May produce endocrine syndromes or visual field defects depending on size and type .

\*Vestibular schwannoma ♦ VIIIth nerve, therefore, produce hearing changes, dizziness or tinnitus .

\* Astrocytoma ♦ may have long history of seizures or manifestations of raised intracranial pressure.



No.: 91

A 64-year-old tour guide has a three-week history of dizziness and headache. He has been feeling generally unwell over the past couple of months, and feels that he has lost about half a stone in weight during that time. He has not had night sweats or other systemic symptoms. His headache is present all the time, but is worse when he is lying flat. He smokes 10 cigarettes a day and has been drinking heavily since his wife died two years ago .

A CT scan of his brain reveals multiple lesions in both cerebral hemispheres and cerebellum. From which two sites are these lesions most likely to have originated?

Options Choose 2

- A. Lung
- B. Prostate
- C. Stomach
- D. Oesophagus
- E. Kidney
- F. Basal cell carcinoma of the forehead
- G. Gall bladder
- H. Testicle
- I. Pancreas
- J. Thyroid

No.: 91

A E

Metastatic lesions are the most common form of intracranial neoplasm in the middle-aged. 25% of patients who die with cancer are found to have intracranial metastases at autopsy .

The most common sites are: Breast (for women) and lung .

The next most common are kidney, melanoma and colon .

Gall bladder, liver, thyroid, pancreas, testicle, ovary and uterus are in the next most frequent group .

Prostate, oesophagus, nasopharyngeal and non-pigmented skin tumours only metastasise to the brain rarely .

It is important to differentiate the effects of secondary neoplasms from paraneoplastic syndromes. These occur with certain types of tumour, and are thought to relate to a secondary autoimmune effect. Cerebellar syndrome and peripheral neuropathy are the commonest manifestations.





No.: 92

A 10-year-old girl is referred because of deteriorating performance at school. She was previously doing well in her lessons, and had made good progress in a number of subjects. Her teachers have noticed that she has begun to daydream for short periods during the day. She is often reading something or looking at the blackboard, when she will stop for a few seconds and stare into space. After these episodes, she resumes doing whatever she was engaged in before.

She was born 6 weeks prematurely, and spent two weeks in a special care baby unit. She has also been treated for congenital dislocation of the hip. There is

Which of the following features would suggest that absence seizures were the most likely cause of her problem?

Options Choose 2

- A. An aura prior to each episode
- B. A good response to a trial anti-epileptic drugs
- C. A strong family history of seizures
- D. Abnormal behaviour or automatisms during the episodes
- E. Abnormal MRI brain
- F. Conscious suppression of episodes
- G. A single febrile seizure in infancy
- H. Asthma
- I. A past history of recurrent meningitis
- J. Episodes provoked by hyperventilation

No.: 92

B J

The main differential in recurrent episodes of a change in the level of consciousness, in childhood, would be absence seizures and complex partial seizures. There is only a poor association with organic brain disease and family history and absence seizures. Ethosuximide is often used as a first line agent.

Feature	Absence	Complex
Drug response	Good	Poor
Post Ictal phenomena	No	Yes
Aura	Less common	More common
Age of onset	Childhood	Teens
Provocation	Hyperventilation	None
MRI	Usually normal	Often abnormal features
EEG	3 Hz spikes	Various temporal foci



No.: 93

A 33-year-old man reports a 4-month history of headache. He has 2 or 3 episodes per day. They tend to come on spontaneously, at any time of the day or night, but do not wake him up from sleep. The pain he experiences is unilateral, localising to the left side of his face, **throbbing** in character, and lasts for about 40 minutes. He takes neurofen and paracetamol, with some resolution of his symptoms .

Which two of the following features would make migraine more likely than other causes of his headaches?

Options Choose 2

- A. Precipitation by alcohol
- B. Associated watering of the eye on the same side as the pain
- C. Visual loss associated with the headache
- D. The experience of flashing lights in association with the headache
- E. Vomiting during attacks
- F. Seizures
- G. Positive family history
- H. Fever associated with the attacks
- I. Episodes persisting for days at a time
- J. An altered level of consciousness during attacks

No.: 93

**D G**

Migraine has been described in **common** and **classical** variants, the main difference being that the classical type involves a visual aura. This may be flashing lights, field changes or even visual loss. Visual loss can also occur in temporal arteritis. Rarely abdominal pain, diarrhoea and vertigo have been reported during attacks. Seizures or fever suggest a more sinister cause. Vomiting also occurs with headaches due to raised intracranial pressure. There may be a family history in migraine .

Migraine is usually unilateral, although the same is true of cluster headaches. These last for minutes at a time and are characterised by an associated localised autonomic disturbance .

Migraine attacks typically resolve within hours of onset. Tension headaches tend to last for longer periods of time, while cluster headaches are much shorter .

Migraine usually occurs without precipitant, although alcohol, bright lights and certain odours are sometimes implicated. Precipitants are not exclusive to migraine, however .

Ergotamine, non-steroidals and sumatriptan are used to treat acute attacks.



No.: 94

A 27-year-old software consultant is being woken up by headaches at night. The headaches are severe, unilateral and are associated with watering of the eyes and redness on the side of the pain. The attacks last for minutes at a time. He had a number of similar episodes 7 months ago, but has been symptom-free since then .

Which of the following treatments can be used to terminate an attack in the acute management of his condition?

Options Choose 2

- A. Amitriptyline
- B. Carbamazepine
- C. Olanzapine
- D. Ergotamine
- E. Subcutaneous sumatriptan
- F. Lithium
- G. Botulinum toxin injections
- H. Acetazolamide
- I. Intranasal lignocaine
- J. Oral dihydrocodeine

No.: 94

E I

The history is typical for cluster headaches. These are unilateral, short-lived episodes that occur at night, in males (over 90%), in clusters over a 2 to 3 week period. They are associated with autonomic symptoms on the same side as the pain, such as lacrimation, redness of the eye and stuffiness of the nose .

The treatment of cluster headaches can be very difficult. In the acute phase, subcutaneous sumatriptan (as for migraine), intranasal lignocaine and high flow oxygen can be used .

For prophylaxis, a single dose of ergotamine last thing at night may be effective. Methysergide has a similar level of effectiveness, although it is important to warn patients of the potential risk of retroperitoneal fibrosis. Prednisolone can also be used, with an initially high dose, and reduced to the lowest effective dose. Lithium is reserved for those cases where there is no response to these treatments.





No.: 95

A 54-year-old musician has developed unsteadiness. He notices that when he walks, he feels the need to hold onto something for support or else he has the sensation of falling over. Although he has not actually fallen, he has had a number of near misses. Of greater concern to him is the difficulty that he has noticed in reading music. He says that he has found that the notes seem to skip around on the page. He smokes cigars daily, and drinks three to four pints of beer a week. He has had some low back pain, but is otherwise well, with no past medical history, and is not on medication.

On examination, he looks well with normal higher mental function. There is fast nystagmus visible in both eyes towards the left when he looks in that direction.

On the basis of this information, in which two sites would the causative lesion most likely to be?

Options Choose 2

- A. Left cerebellum
- B. Right cerebellum
- C. Right parietal hemisphere
- D. Left parietal hemisphere
- E. Left inner ear
- F. Right inner ear
- G. The foramen magnum
- H. The medial longitudinal bundle
- I. The left optic nerve
- J. The right optic nerve

No.: 95

A F

Nystagmus is abnormal oscillation of the eyes on attempted fixation. It occurs physiologically at the extremes of gaze. There is a fast phase, which is defined as the direction of the nystagmus. This represents attempted correction of a drift of gaze in the opposite direction (slow phase).

Pathologically, nystagmus can be caused by damage to a large number of structures because of the complex mechanism of gaze and fixation control.

□ Pendular nystagmus occurs with large amplitude oscillations in all directions and is related to poor visual acuity.

□ Ataxic nystagmus (internuclear ophthalmoplegia) occurs in lesions to the medial longitudinal bundle and results in bilateral paralysis of adduction with nystagmus in the abducting eye. It occurs in multiple sclerosis, Wernicke's encephalopathy and some pontine lesions.

The direction of the nystagmus, if it is present unilaterally, can give some indication as to its possible cause:

\*Vestibular i.e. inner ear or sometimes, unilateral brainstem disorders may cause nystagmus in a direction away from the lesion.

\*Cerebellar lesions tend to produce nystagmus toward the side of the lesion.

\*Large brainstem lesions may cause nystagmus in up-gaze.

\* Foramen magnum lesions produce nystagmus in down-gaze.





No.: 96

A 23-year-old man is the victim of a street robbery. He was walking home when he was grabbed from behind. His assailant demanded his wallet and mobile phone. The man initially refused and was stabbed in the back. His assailant then ran away. A passer-by called an ambulance. He has been seen by the surgical team in the accident and emergency unit. They report that he has no active blood loss, and there is no major damage to any of his internal organs. He has an episode of urinary incontinence, however, and complains of some weakness in his legs .

An MRI of his thoracic spine is carried out, and he is found to have suffered a partial section of the right side of his spinal cord at the level of T9 .

Which of the following physical signs would be inconsistent with this injury?

Options

- A. Absent pain sensation on the right of the umbilicus
- B. Loss of temperature sensation on the sole of the right foot
- C. Loss of joint position sense in the right ankle
- D. Weakness of the right foot
- E. Loss of vibration sensation at the right ankle

No.: 96

B

Clinically, this is a Brown-Sequard Syndrome due to hemi-section of the spinal cord. The pattern of weakness and sensory deficits can be derived from knowing the basic anatomy of the spinal cord :

\*The spinothalamic tract (pain and temperature) crosses in the cord .

\*The posterior columns (vibration and joint position) cross in the brainstem .

\*The corticospinal tracts cross in the brain stem .

Therefore, in a hemi-section of the cord, there will be ipsilateral loss of all modalities at the level of the lesion, because the spinothalamic tracts travel up the cord for around 2 vertebral segments before they decussate .

Below this, there is :

\*Ipsilateral joint position and vibration loss

\*Contralateral pain and temperature loss

\*Ipsilateral paralysis (upper motor neuron pattern of weakness)



No.: 97

An 18-year-old woman has been having 1-2 episodes of urinary incontinence over the past one month. She is now constipated and has not opened her bowels for 10 days. She has been generally well, and has not noticed any back pain or subjective sensory changes . She is an only child, was born at term with no complications. At school, she reached all her academic milestones, and plans to go to university to study law next year. She was not good at sport, however, and feels that this is because she was uncoordinated . □

On examination, her height and weight are within normal limits. She has normal higher mental functioning and there are no cranial nerve palsies. She has normal visual acuity bilaterally .

There is a slight kyphosis to her spine and there is a small patch of hair visible on the lower back .

Which two features are you least likely to find on neurological examination of her lower limbs?

Options Choose 2

- A. Sensory abnormalities in the feet
- B. Absent ankle reflexes
- C. Brisk knee reflexes
- D. Abnormal anal tone
- E. Bilateral foot drop
- F. Sensory abnormalities below the knees bilaterally
- G. Down going plantars
- H. Wasting of the muscles of the legs
- I. Abnormal gait
- J. Brisk ankle reflexes

No.: 97

G J

The diagnosis here is dysraphism. This refers to a failure of fusion of some of the midline spine structures in foetal development. In its most severe form, gross spina bifida results, with protrusion of a meningocele, and spastic weakness of the legs from early childhood .

Less severe forms are recognised, and may not be picked up until later in life (spina bifida occulta). The clue in the question is the kyphosis associated with hair on the lower back. This can cause a syrinx (fluid in the central spinal cord) or tethering of the roots at the cauda equina. Caudal lesions like this produce bowel and bladder disturbance with leg weakness and wasting. Brisk knee jerks in association with absent ankle jerks and up going plantars are characteristic of these types of lesion .

Diagnosis is by an MRI scan of the spine. Neurosurgical intervention may be possible.



No.: 98

A 58-year-old man was diagnosed with Parkinson's disease 2 years ago. His wife is concerned because he has recently become more forgetful than usual. He recently went out and left the gas on and the front door open. He has had three or four episodes of getting to the local shopping centre and forgetting why he was going there. She tells you that he has good days and bad days, with apparently normal functioning on one day being followed by days of withdrawal and inattentiveness. On two occasions he has reported seeing rabbits running around the floor of his living room. His mood is generally lower now than it was a year ago. He is being treated with levodopa for his Parkinsonism, to which he has responded reasonably well, in terms of control of his physical symptoms. He also takes citalopram for his mood disturbance.

In his past medical history, he had a myocardial infarction 2 years ago, and a gall bladder operation the year before that.

On the basis of this information, what is the most likely diagnosis?

Options

- A. Alzheimer's disease
- B. Vascular dementia
- C. Lewy body dementia
- D. Pseudodementia
- E. Dementia secondary to levodopa

No.: 98

C

Lewy body dementia is caused by degeneration of the substantia nigra and the accumulation of Lewy bodies in the cortex of the brain. The typical clinical picture is of dementia associated with extra pyramidal disease, which may occur before or after the onset of the cognitive disturbance.

The characteristic features include :

- \*Early fluctuation in disease so that variation occurs on a daily basis

- \*Visual hallucinations

- \*Recent onset of memory disturbance

The prognosis is generally poor, and the cognitive decline is progressive over the years.

Alzheimer's disease tends not to involve hallucinations, and is less fluctuant early in the disease.

Vascular dementia typically involves a stepwise progression in association with a history of TIA or strokes.

Pseudo dementia is the name given to the manifestation of mood disturbance as cognitive disturbance in the elderly. Hallucinations would be unusual in this context.

Levodopa does not tend to produce this progressive global cognitive disturbance. It may precipitate delirium in higher doses.





No.: 99

A 78-year-old woman is referred for assessment. Over the past two months, her daughter has noticed that she seems less concerned about her appearance and cleanliness than usual. She occasionally forgets names. She has become a lot more aggressive, and often tries to pick arguments with people in public situations . There is no past medical history of note, apart from an uncomplicated hip replacement operation performed 5 years ago for osteoarthritis and she takes no regular medication, and has no allergies .

On examination, the patient is cooperative and pleasant, but avoids eye contact, and speaks quietly in a monotonic voice. You notice that she often repeats certain words. During the examination, however, she tries to kiss you and then starts to stroke your arm . She has a normal systemic examination. Neurological examination reveals no cranial nerve deficits, although her lips move into a pout when the side of her mouth is tapped. When her palm is stroked, she grips your hand, and there is some difficulty in getting her to let go. Reflexes are generally brisk, although her plantars are down going with normal power present in all 4 limbs .

Which of the following features make a diagnosis of frontotemporal dementia more likely than Alzheimer's disease?

Options Choose 2

- A. An abnormal EEG
- B. Early disturbance of memory
- C. Early behavioural disturbance
- D. Depression
- E. Language disturbance
- F. Impaired visuospatial function
- G. Early urinary incontinence
- H. Preserved insight
- I. Impaired ability to calculate
- J. Normal social behaviour

No.: 99

C G

Frontotemporal dementia (Pick's disease) is the second most common type of dementia after Alzheimer's disease. Onset is usually insidious at an earlier age than Alzheimer's disease. The pathology, as the name suggests, occurs in the frontotemporal regions and may involve microvacuolar degeneration or astrocytic gliosis. The differences between FTD and Alzheimer's are summarised:

	Alzheimer's	FTD
Memory disturbance	Early	Late
Language	Affected	Spared
Social behaviour	Often normal	Affected
Mood	Depression	Blunting
Incontinence	Late	Early
EEG	Temporal slowing	Normal
Insight	Later loss	Early loss
Primitive reflexes	Late	Early (pout, grasp)
Age onset	>65	<65





No.: 100

A 35-year-old ship builder has a two-week history of generalised weakness in association with dizziness. He has noticed that his hands have been increasingly clumsy, and he has developed some difficulties with his far vision. He has a family history of type 2 diabetes and his father died from a seizure at the age of 45, although he did not have a formal diagnosis of epilepsy .

On examination, there are no cranial nerve abnormalities to detect, although his fundi appear pale. His upper limbs are normal on examination, and the abdominal reflexes are also normal. His legs are hypertonic, with brisk ankle reflexes and up going plantars .

A CT scan of the brain is reported as normal. A lumbar puncture shows a protein of 0.3 g/l, glucose 4.2 (serum=4.8), 1 RBC. There are oligoclonal bands in the CSF that are paired with identical bands in the serum .

Which 2 illnesses are the least likely causes of his presentation?

Options Choose 2

- A. Multiple sclerosis
- B. Behcet's disease
- C. SLE
- D. Sarcoidosis
- E. Progressive systemic sclerosis
- F. Subacute sclerosing panencephalitis
- G. Wegener's granulomatosis
- H. Systemic lymphoma
- I. Lyme's disease
- J. Generalised vasculitis

No.: 100

A F

The presentation is of an upper motor neurone process that has affected the lower limbs in association with some nonspecific symptoms. The lumbar puncture has a low number of red cells, but little else. The most important investigation here is the oligoclonal bands. The fact that they are present in the CSF and the serum implies a systemic cause for his illness .

Multiple sclerosis produces oligoclonal bands in the CSF that are not paired with serum bands. MS is a disease of the central nervous system, exclusively .

Subacute sclerosing panencephalitis is a late consequence of measles infection, and produces inflammation of the central nervous system .

Apart from the inflammatory diseases listed as stems in the question, atypical infections could give this clinical presentation :

- \*Viral encephalitis
- \*Fungal meningitis
- \*Lyme (but will also have systemic signs)
- \* Post viral syndromes

No.: 101



A 32-year-old man came from Somalia to the UK 3 years ago. He has a 2-week history of unusual sensation in the right arm and leg. He has also noticed that his right leg is more clumsy than usual. He has had no fever or systemic symptoms. He has no past medical history, but did not receive any vaccinations as a child.

On examination, he has mild weakness of the right arm and leg with reduced co-ordination on this side. His reflexes are brisk with an up going right plantar. Examination is otherwise normal.

A lumbar puncture and MRI scan of the brain are carried out. The LP shows 32 lymphocytes and 2 RBC, protein of 1.2 g and a glucose of 4.3 (serum = 6). MRI is shown. What is the most appropriate initial treatment for this condition?

Options

- A. Radiotherapy
- B. Intravenous broad spectrum antibiotics
- C. Triple therapy for TB
- D. Surgical excision
- E. Intrathecal chemotherapy

No.: 101

C

The diagnosis is of multiple tuberculomas located in the left hemisphere.

Tuberculous meningitis presents acutely with headache, fever and confusion. This usually evolves over 2 weeks (in contrast with bacterial meningitis). It is usually associated with immunosuppression of one form or another. CSF findings are of a marked lymphocytosis, elevated protein and low glucose.

The lesions shown are tuberculomas rather than bacterial abscesses, because of the chronic presentation, the lack of CSF neutrophilia, and the absence of signs of CNS sepsis which would accompany a bacterial abscess. Bacterial abscesses are usually the result of direct spread from the ear or the sinuses. Rarely, they can occur secondary to systemic sepsis.

Tuberculomas generally occur in populations where there are high rates of TB. They may remain asymptomatic for many years, and can be picked up as an incidental finding. The treatment of a tuberculoma is initially with triple therapy. Surgical drainage may be considered if there is no resolution of the lesions with treatment. There is often a mild CSF lymphocytosis and normal glucose levels.

No.: 102



A 34-year-old woman is at home when she develops tingling in her right hand. This increases in intensity throughout the day until she goes to bed. The following morning she finds that she is unable to stand. She has urinary incontinence .

On examination, cranial nerves are normal. Power is normal in the arms bilaterally but reduced to 4/5 in both legs. Reflexes are globally brisk, with increased tone and up going plantars bilaterally. Sensation is impaired in all modalities to the upper chest. Systemic examination is normal .

The patient is generally well otherwise with no past medical history. She drinks wine, socially and is on no medications .

An MRI of the spine is shown. What is the diagnosis?

Options

- A. Spinal artery thrombosis
- B. Vitamin B12 deficiency
- C. Syringomyelia
- D. Transverse myelitis
- E. AV malformation of the spine

No.: 102

D

There is acute swelling of the lower cervical / upper thoracic spinal cord. Clinically, this has come on sub- acutely, with no systemic disturbance. Therefore, this is most likely to represent an acute demyelinating episode of the cord .

Infarction of the spinal artery affects the motor (Corticospinal) tracts, alone, and there is no reason for this to occur in this patient .

A syrinx is a fluid filled cavity extending down the cervical cord. The lesion shown is not fluid filled. The presentation is too acute .

Vitamin B12 deficiency would tend to occur over a longer period of time, with preferential involvement of the dorsal columns .

AV malformations occur within the dura, but outside the spine, itself. This lesion is clearly intramedullary .

This illness may represent an isolated incident or may be the first presentation of MS ♦ scanning of the brain, lumbar puncture, and visual evoked potentials are indicated.





No.: 103

A 45-year-old oil executive has been to Russia to look at some drilling work. A day after his return to this country, he developed a fever and sore throat. This resolves over a week, although he notices that his voice becomes ♦nasal♦ and that when he drinks, fluid comes up through his nose. On examination, at this time, it is noted that he has bulbar weakness as well as abnormal pupils (loss of accommodation in association with blurred vision) .

These features slowly improve over the next 5 weeks, until one day he develops weakness and tingling in his hands and feet. On examination he has flaccid weakness of all 4 limbs with absent reflexes. His speech and swallowing remain impaired and his pupillary reactions to accommodation are impaired. He is afebrile, and normotensive, with normal heart sounds and a clear chest, on examination .

What is the diagnosis?

Options

- A. Botulism
- B. Diphtheria
- C. Tetanus
- D. Acute demyelinating encephalomyelitis
- E. Poliomyelitis

No.: 103

B

Although rare in the West, diphtheria is on the increase in Eastern Europe .

The initial infection is followed by palatal paralysis in association with ciliary paralysis of the pupil. These features distinguish this type of attack from the other causes of bulbar weakness. A symmetrical polyneuropathy follows over the next six weeks. The syndrome resolves in months, to leave no long-term adverse effects. Around 20% of diphtheria attacks involve the nervous system. The damage is mediated by an exotoxin .

Botulism affects the neuromuscular junction, and may begin with bulbar weakness. Attacks are usually severe and require ITU support .

Tetanus toxin causes acute rigidity and hyperthermia resulting from GABA inhibitory blockade. Treatment is with antitoxin, antibiotics and ITU support .

Acute demyelinating encephalomyelitis is acute central nervous system inflammation resulting from demyelination. It is usually post-infective .

Polio produces motor neuron weakness leading to chronic wasting and spasticity of affected limbs.



No.: 104



This is a T2 weighted sagittal image from a MR study of the cervical spine performed on a 43-year-old man complaining of upper limb weakness and altered sensation .

What is the radiological diagnosis?

Options

- A. Intramedullary haemorrhage
- B. Demyelination
- C. Syringomyelia
- D. Ependymoma
- E. Intramedullary metastases

No.: 104

C

Findings: there is a fusiform region of high signal seen within the cervical portion of the spinal cord in keeping with syringomyelia .

Syringomyelia is cavitation of the central canal of the spinal cord, usually located in the cervical region. Commonly there is chronic, progressive degeneration seen clinically as dissociated brachial amyotrophy and sensory loss .

Clinical onset is usually insidious. Progress is unpredictable and may be slow or catastrophic .

Classical findings on examination are segmental (usually bilateral) wasting and weakness of the hands and arms with diminished reflexes. Dissociated sensory loss is present in the upper limbs with loss of pain and thermal sensation (due to destruction of the decussating spinothalamic nerve axons) and preservation of light touch, vibration and joint position (carried by the dorsal column fibres). The legs show spastic weakness as a result of corticospinal tract involvement. Other, less common features are Horner's syndrome and pain .

Associated conditions include: Type 1 Chiari malformation (90%), spinal cord trauma, thoracic scoliosis, Klippel-Feil syndrome, platybasia and basilar invagination and intramedullary tumour.



No.: 105

A 30-year-old woman is brought to casualty by her husband. She is drowsy and confused with a Glasgow Coma Scale (GCS) of 9/15. She has been increasingly unwell for 2-3 days with general malaise and mild febrile symptoms. However, for the past few hours she has become increasingly confused and is drifting in and out of consciousness.

On examination she is drowsy but rousable. There are no focal neurological signs. While in the Emergency Unit she has a generalized tonic-clonic seizure. A T2-weighted magnetic resonance imaging (MRI) scan of her brain shows hyperintensity consistent with oedema in the temporal and frontal lobes with no basal ganglia involvement.

A lumbar puncture is performed and the results shown below:

Appearance Clear, colourless  
Cells 500 mm<sup>3</sup> (>90% lymphocytes)  
Protein 0.8 g/L  
Glucose 4.5 mmol/L

Plasma glucose was measured as 5.3 mmol/L.

Which of the following investigations is most likely to reveal the correct diagnosis?

Options Choose 1

- A. CSF HSV culture
- B. CSF HSV PCR
- C. CSF Cryptococcal neoformans stain
- D. Magnetic resonance angiogram
- E. Serum HSV viral titres

No.: 105

B

This patient has herpes simplex virus (HSV) encephalitis. By far and away the most sensitive and specific test is polymerase chain reaction (PCR) of viral DNA from cerebrospinal fluid (CSF). HSV culture is low yield and antibody titres take too long to be diagnostically useful. Intravenous (IV) aciclovir should be commenced before the diagnosis is confirmed on the basis of clinical suspicion alone as the prognosis is grave.





No.: 106

A 76-year-old man presented an 8- to 12-month history of difficulty mobilizing. In addition his wife commented that his memory was failing and that he had several times left taps running and the gas cooker on. She also reported that he often appeared disoriented and repeatedly told her that friends and family who had been dead for some time were in the room with them or even on occasion that strange creatures were haunting him when awake .

On examination he had bilateral rigidity and bradykinesia of his upper limbs. His gait was shuffling. His abbreviated mental test (AMT) score was 6/10 .

What is the likely diagnosis?

Options Choose 1

- A. Alzheimer's disease
- B. Diffuse Lewy body disease
- C. Idiopathic Parkinson's disease
- D. Multiple system atrophy
- E. Pick's disease

No.: 106

**B** Lewy body disease is a Parkinson's Plus syndrome. It is differentiated from idiopathic Parkinson's with dementia by the duration of the Parkinsonian features if they have been present for <12 months before dementia ensues then the diagnosis is Lewy body disease. Visual hallucinations are a common feature.





No.: 107

A 14-year-old girl presents with a 7-day history of unsteadiness, diplopia, dizziness and drowsiness. Prior to this she had been well and takes no regular medications. Her last menstrual period was two weeks ago. Family history reveals her mother has hypothyroidism and her father has well-controlled epilepsy. Recently, concerns had been raised by her teachers about a deterioration in her schoolwork .

On examination, she seems well but there is coarse nystagmus, dysarthria, a wide gait and ataxia .

Investigations show normal full blood count, renal function and liver function tests. Chest X-ray is normal. Both CT and MRI of brain are reported as normal. Lumbar puncture shows normal opening pressure and cell counts .

What is the most likely diagnosis?

Options Choose 1

- A. Herpes Simplex encephalitis
- B. Meningitis
- C. Multiple sclerosis
- D. Phenytoin toxicity
- E. Wilson's disease

No.: 107

The clinical signs are consistent with the classical cerebellar dysfunction of phenytoin toxicity. She has been abusing her father's medication.



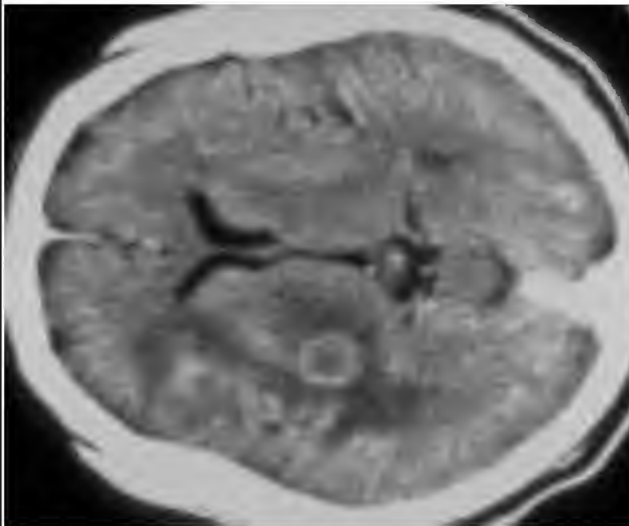


No.: 108

A 42-year-old human immunodeficiency virus (HIV) positive man presents with a grand mal epileptic seizure. He had initially presented 6 months previously with *Pneumocystis carinii* pneumonia and a CD4 T-lymphocyte count of 10 cells/mm<sup>3</sup>. He was commenced on HAART and his most recent CD4 count (from 1 month previously) was 50 cells/mm<sup>3</sup>. On examination he has no focal weakness, but both plantar responses are extensor. Fundoscopy showed no abnormalities.

He undergoes contrast enhanced computed tomography (CT) scanning of his brain.

What is the diagnosis?



Options Choose 1

- A. AIDS-related dementia
- B. Brain abscess
- C. Cerebral toxoplasmosis
- D. Primary central nervous system (CNS) lymphoma
- E. Progressive multifocal leukoencephalopathy

No.: 108

C

The image shows a typical contrast enhancing ring lesion of cerebral toxo with associated cerebral oedema in the right basal ganglia region.



No.: 109

A 75-year-old woman presented a four-week history of progressive difficulty mobilising. She was increasingly unsteady and had several falls. She also complained of vertigo and was having difficulty pronouncing certain words. She had no other symptoms apart from some abdominal bloating. She was a non-smoker and teetotal. She was not taking any regular medication .

An magnetic resonance imaging scan of her brain was normal .

Lumbar puncture revealed no abnormalities .

An electroencephalogram was normal .

Other investigations showed :

Full count Normal

Serum urea electrolytes Normal

Thyroid function tests Normal

Serum calcium Normal

Erythrocyte sedimentation rate Normal

C-reactive protein Normal

Anti-nuclear antibody Negative

Anti-neutrophil cytoplasmic antibodies Negative

Anti-Hu antibody Positive

What is the most likely diagnosis?

Options Choose 1

A. Acute disseminated encephalomyelitis (ADEM)

B. Creutzfeldt-Jakob disease

C. Herpes simplex encephalitis

D. Paraneoplastic cerebellum syndrome

E. Posterior circulation stroke

No.: 109

The clinical symptoms are of cerebellar dysfunction whilst the normal investigations make A, C and E unlikely .

The cause of paraneoplastic cerebellar degeneration appears to be immunologically mediated attack on the cerebellum. It is commonest with small cell lung cancer and female malignancies (breast, ovary and uterus).





No.: 110

You are referred a 67-year-old patient by the cardiothoracic surgical team. She was admitted for the biopsy of a mediastinal mass and had ventilatory difficulties post-operatively. When they attempt to take her off ventilation she makes some respiratory effort but then fails to ventilate adequately. On examination she is sedated and appears to have bilateral ptosis, with reduced upgaze. There is no obvious limb weakness and reflexes are present .

Which of the following is most likely to be abnormal?

Options

- A. Anti-GQ1b antibodies
- B. Voltage gated calcium channel antibodies
- C. Cerebrospinal fluid (CSF) protein
- D. Acetyl Choline receptor antibodies
- E. Magnetic resonance imaging (MRI) brain

No.: 110



No.: 111

A 34-year-old woman is referred by her GP with a 3-month history of fatigue and difficulty walking up stairs. She also complains of a pruritic rash which is especially bad over her scalp but also affects her face. On examination you find that she has bilateral upper weakness in all 4 limbs which is worse proximally. In addition she has a scaly eruption covering her knuckles .

The presence of which of the following best predicts a good prognosis?

Options

- A. Anti-Jo-1 antibodies
- B. Low creatine kinase (CK) levels
- C. Anti-Mi-2 antibodies
- D. Spontaneous electromyographic (EMG) activity
- E. Subcutaneous calcifications

No.: 111

This patient has dermatomyositis. Gottron's papules, a scaly eruption over the knuckles, are pathognomic of the disease .

Anti-Mi-2 antibodies almost always occur in patients with dermatomyositis, often in patients whose cutaneous involvement is prominent. In adults, who are negative for this antibody, effusions, arrhythmias, interstitial lung disease and other added features are more common .

Anti-Jo1 antibodies are more common in polymyositis and their presence defines a distinct group of polymyositis patients with interstitial lung disease, arthritis, and fevers. Low CK levels do not guarantee inactive muscle disease, as low or normal creatine kinase levels may be present despite active muscle inflammation .

Spontaneous EMG activity is often present in dermatomyositis.



No.: 112

A 57-year-old man presents with extremely severe sudden onset headache, initially without neurological deficit. After being in casualty for 2 h he develops new onset diplopia and on examination he had mild neck stiffness and is febrile with a temperature of 37.8 °C. His left pupil is dilated and down and out.

Which of the following investigations should be arranged most urgently?

Options

- A. Computed tomography (CT) brain without contrast
- B. Magnetic resonance imaging (MRI) brain with gadolinium
- C. Cerebrospinal fluid (CSF) examination for xanthochromia
- D. Blood cultures
- E. CSF examination for red cells

No.: 112

This man has had a subarachnoid haemorrhage with compressive third nerve palsy and signs of meningeal irritation. Fever is common after SAH. The clinical history is typical, and CT without contrast will be the best investigation to confirm the diagnosis at this stage. MRI with gadolinium is useful to demonstrate active inflammation. Xanthochromia is positive between 12 h and 2 weeks following the acute event. Negative CSF is very useful in excluding SAH, but bloodstained CSF may result from a traumatic tap.

No.: 113

A 43-year-old man who has recently come to the UK from Uganda is brought to casualty after having a first tonic-clonic seizure. He is noted to be cachectic, confused and slightly agitated. He has mild neck stiffness and a fever of 38.8 °C. Computed tomography (CT) scan shows no focal lesion and lumbar puncture (LP) is not contraindicated. Opening pressure is 39 cm and the cerebrospinal fluid (CSF) is clear with a leukocyte count of 3 and glucose 3.5 (serum 6.8).

Which of the following CSF studies is most likely to be positive?

Options

- A. Polymerase chain reaction (PCR) for tuberculosis (TB)
- B. Indian ink stain
- C. Cryptococcal Antigen
- D. PCR for JC virus
- E. PCR for cytomegalovirus (CMV) DNA

No.: 113

This man has cryptococcal meningitis and is immunosuppressed secondary to HIV infection. Common symptoms are fever, confusion, memory loss and depressed consciousness. CSF opening pressure is often high. The most accurate diagnostic test is the detection of cryptococcal antigen in the CSF (CD4 count is often less than 100). In TB meningitis glucose levels are often low. JC virus is associated with progressive multifocal leucoencephalopathy. CMV infection is often associated with retinitis and/or radiculopathy.





<p>No.: 114</p> <p>A 23-year-old man is referred by his general practitioner (GP) after complaining of muscle cramps and spasms. He describes painful bilateral leg cramps and contractures after a few minutes of walking uphill or climbing stairs. This is accompanied by leg weakness, which goes away after a short break. He is then able to continue what he was doing .</p> <p>Which of the following tests would be most likely to confirm the diagnosis?</p> <p>Options</p> <p>A. Serum potassium B. Electromyogram (EMG) C. Muscle biopsy D. Ach receptor antibodies E. Serum creatine kinase (CK)</p>	<p>No.: 114</p> <p><b>C</b></p> <p>This man has myophosphorylase deficiency (McArdle's Disease) which typically presents with muscle cramps, exercise intolerance, weakness and sometimes myoglobinuria. Pain and stiffness are induced by weakness by short periods of exercise and can be relieved by resting, thus patients may experience a second wind after having a rest .</p> <p>EMG shows myopathic changes .</p> <p>CK levels, as in many other muscle diseases are often raised. The disease is diagnosed by the demonstration of the absence of myophosphorylase on muscle biopsy .</p> <p>Electrolytes are normal (cf. hypokalaemic periodic paralysis) .</p> <p>Ach receptor antibodies are positive in myasthenia gravis.</p>
<p>No.: 115</p> <p>A 28-year-old woman is brought to casualty via an ambulance after the onset of a convulsive seizure. She is accompanied by a relative who says that there is no history of seizure disorder and that she has been fitting for about 30 min without regaining consciousness. The ambulance staff have secured her airway and administered 4 mg IV lorazepam but she continues to have convulsions .</p> <p>Which of the following is the next appropriate step?</p> <p>Options</p> <p>A. Immediate computed tomography (CT) brain B. Intravenous phenytoin C. Intravenous propofol D. Lumbar puncture E. Intravenous phenobarbitone</p>	<p>No.: 115</p> <p><b>B</b></p> <p>Status epilepticus :</p> <p>Convulsive status is associated with severe metabolic compromise and can result in significant neuronal damage. Fosphenytoin or phenytoin should be started if lorazepam has had no effect. If this is not effective, the patient should be transferred to intensive treatment unit (ITU) with electroencephalogram (EEG) monitoring. Underlying causes should be investigated with CT/lumbar puncture (LP)/Chest X-ray (CXR) once the patient is stable.</p>



<p>No.: 116</p> <p>A 43-year-old man who is originally from Uruguay is referred by his GP for new onset of seizures. He was previously fit and well but has had 3 generalized seizures within the last 6 weeks. There is no significant family history and he reports no other neurological symptoms. On examination he has multiple hard subcutaneous nodules around the shoulders and thighs. Plain X-ray reveals multiple cigar shaped calcifications in the thigh muscles. Magnetic resonance imaging (MRI) brain demonstrates multiple intracranial cystic lesions with calcification with no mass effect .</p> <p>Which of the following is the most appropriate treatment?</p> <p>Options</p> <p>A. Surgical removal of the cysts B. Amphotericin B C. Radiation therapy D. High dose steroids E. Praziquantel</p>	<p>No.: 116</p> <p><b>E</b></p> <p>Cysticercosis is caused by larvae from <i>Taenia solium</i>, the pork tapeworm .</p> <p>The most common presentation is with epilepsy but cysts may also produce mass effect or obstructive hydrocephalus. It is most commonly seen in people from Central or South America as well as parts of Africa and the Middle east .</p> <p>Praziquantel is the main treatment and steroid cover may be required .</p> <p>Surgery is needed if a cyst is obstructing cerebrospinal fluid (CSF) flow.</p>
<p>No.: 117</p> <p>A 17-year-old male presents is referred with progressive deterioration of vision. He complains of night blindness and worsening tunnel vision. Fundoscopy reveals patches of black pigment in the shape of bone spicules bilaterally. There are no cataracts. He also has bilateral ptosis, extremely limited eye movements such that there is minimal vertical or horizontal movement of either eye .</p> <p>What is the most likely diagnosis?</p> <p>Options</p> <p>A. Kearns-Sayre Syndrome B. Usher syndrome C. Refsum syndrome D. Retinitis pigmentosa E. Macular degeneration</p>	<p>No.: 117</p> <p><b>A</b></p> <p>Kearns-Sayre syndrome is defined as chronic progressive external ophthalmoplegia and retinitis with onset before age 20. It is thought to result from a deficiency of one of the respiratory chain enzymes .</p> <p>It, along with Usher syndrome (congenital deafness) and refsum disease (polyneuropathy and cerebellar ataxia) is one of the causes of retinitis pigmentosa-like changes.</p>



<p>No.: 118</p> <p>A 32-year-old male is referred by his GP with a two-month history of severe headaches. He describes getting a sharp pain at night behind his left eye. This is accompanied by redness and watering in the same eye and drooping of that eyelid. The pain lasts approximately 30 min and then resolves spontaneously. They occur up to two times in one night every night for several weeks and he can be attack free for several weeks at a time. There is no significant family history. Neurological and systemic examinations reveal no abnormalities.</p> <p>Which of the following would be most appropriate to prevent further attacks?</p> <p>Options</p> <p>A. Prednisolone B. Lithium C. Gabapentin D. Sumatriptan E. Oxygen inhalation</p>	<p>No.: 118</p> <p>A</p> <p>This is typical cluster headache.</p> <p>For prolonged bouts verapamil is recommended (and lithium can also be used) but limited courses of corticosteroids or methysergide can be used when the bout is shorter.</p> <p>Oxygen and sumatriptan are used as treatments in acute attacks.</p>
<p>No.: 119</p> <p>A 21-year-old student is admitted with a five-day history of headache, fever, vomiting and confusion. Her friend has noticed that over the last 24 h she appears to be slightly confused and forgetting recent events. On examination, she is noted to have a fever of 38.6 °C and a pulse of 116. She is confused in time and place and unable to follow three-stage commands. There are no cranial nerve abnormalities or focal limb signs. Magnetic resonance imaging (MRI) scan shows bilateral temporal lobe hyperintensity on T2 weighted images.</p> <p>Which of the following tests is most likely to be positive?</p> <p>Options</p> <p>A. Tuberculosis polymerase chain reaction (TB PCR) B. Cerebrospinal fluid (CSF) culture C. Lyme disease serology D. CSF PCR for herpes simplex virus (HSV) E. CSF cryptococcal antigen</p>	<p>No.: 119</p> <p>D</p> <p>This is a classic presentation of herpes encephalitis. The virus has a predilection for the temporal or frontal lobes. CSF PCR has a sensitivity of over 95% and IV aciclovir should be started whenever HSE is suspected.</p>



No.: 120

A 63-year-old lady is referred by the general surgical team. She had been admitted for gastrointestinal obstruction and has had a colonic tumour resected. After waking from the operation, she was found to be confused and agitated. On examination she is emaciated. She is also agitated and unaware of where she is and her recent illness. Examination of her cranial nerves reveals horizontal nystagmus and reduced abduction of both eyes. She also has reduced adduction of the left eye on attempted right lateral gaze. The rest of the neurological examination is difficult but there is no limb weakness and reflexes are all present .

Bloods :

Haemoglobin (Hb) 13.2  
 White cell count (WCC) 9  
 Platelets (Plts) 378  
 Na 136  
 K 4.2  
 Ur 6  
 Creatine 110  
 C-reactive protein (CRP) 85

Which of the following steps would be most useful?

Options

- A. Magnetic resonance imaging (MRI) brain
- B. Lumbar puncture and cerebro spinal fluid (CSF) examination
- C. Serum ammonia levels
- D. Parenteral vitamin administration
- E. Intravenous methylprednisolone

No.: 120

**D**

This woman has a complex ophthalmoplegia and confusion. She also has a history of recent nutritional disturbance (because of the intestinal obstruction). The diagnosis is Wernicke's encephalopathy which is caused by thiamine deficiency. It is most common in alcohol abusers but also affects people with nutritional deficiencies as well as dialysis patients .

This lady has bilateral abducens palsies as well as an internuclear ophthalmoplegia.







No.: 121

A 57-year-old Afro-caribbean man is admitted with difficulty walking over the last two weeks and tingling in his hands and feet. He is known to drink approximately 50 units of alcohol per week. On examination he is unable to walk and has bilateral symmetrical upper and lower limb weakness, which is worse distally. Ankle and knee reflexes are absent and there is no significant plantar response. Sensory examination reveals mild distal changes in all four limbs .

Which of the following tests will be most useful in confirming the diagnosis?

Options

- A. Anti-GQ1b antibodies
- B. Magnetic resonance imaging (MRI) cervical spine
- C. Forced vital capacity (FVC)
- D. Campylobacter serology
- E. Cerebrospinal fluid (CSF) examination

No.: 121

This man has an acute inflammatory demyelinating polyneuropathy (Guillain-Barre syndrome). FVC is the most urgent investigation and campylobacter serology may be useful, especially if there is a history of a gastrointestinal illness. However, CSF protein is likely to be raised and this result helps in making the diagnosis. Nerve conduction studies are the other main diagnostic test. MRI cervical spine will be normal and anti-GQ1b antibodies are present in the Miller-Fisher syndrome, a variant of Guillain-Barre which affects eye and facial movements.





No.: 122

A 54-year-old man from Colombia is referred with sensory symptoms and urinary disturbance. He reports having had burning feet for over a year. More recently he has had episodes of urinary incontinence and has become impotent. On examination he has a slightly stiff gait but has no cranial nerve or upper limb signs. Examination of the lower limbs reveals increased tone bilaterally with power 3/4 out of 5 throughout. Knee and ankle reflexes are brisk and plantar responses extensor. He also has loss of vibration sense in the feet.

Initial cerebrospinal fluid (CSF) :

Protein 0.32

Glucose 4.0 (serum 6.3)

White cell count (WCC) 20 lymphocytes, no red cells

Which of the following tests will be most helpful in making the diagnosis?

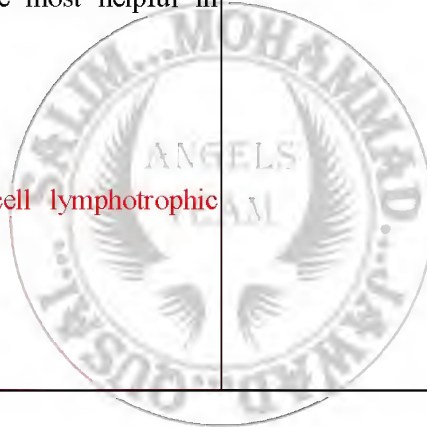
Options

- A. CSF oligoclonal bands
- B. Serum Antibodies to human T-cell lymphotropic virus (HTLV)
- C. Vitamin B12 levels
- D. Spinal angiography
- E. HIV testing following counselling

No.: 122

B

This man has tropical spastic paraparesis as a result of demyelination following infection with HTLV1. The major features are paraesthesia, sphincter disturbance. Other features include leg spasticity and slow loss of vibration sense. The disease is more common in India, the Seychelles, Jamaica, Colombia and Africa but is present all over the world. Thinness of the spinal cord is seen on MR. Diagnosis is confirmed with serology.





<p>No.: 123</p> <p>A 23-year-old painter is admitted with right-sided limb weakness. He describes having had an episode of left-sided eye pain two days ago at work which lasted around an hour. On the day of admission he reports having had increasing right arm and leg weakness. There is no significant family history. On examination he has very mild difficulty with word finding but no problems with understanding. There is also significant right arm and leg weakness with an upgoing R plantar .</p> <p>Which of the following investigations is most likely to prove most useful?</p> <p>Options</p> <p>A. Computed tomography (CT) without contrast B. Magnetic resonance imaging/magnetic resonance angiography (MRI/MRA) brain C. Angiography D. Erythrocyte sedimentation rate (ESR) E. Coagulation screen</p>	<p>No.: 123</p> <p><b>B</b></p> <p>This man has had an acute dissection of the carotid artery, which may present with periorbital pain followed by slowly worsening symptoms of stroke. It may also present with a painful Horner's syndrome. It is best visualised on MRI and is treated with anticoagulation .</p> <p>Dissection often occur after minor trauma/whiplash injuries. As a painter this man may have extended his neck at work. It can also occur when patients extend their necks whilst at the hairdressers.</p>
<p>No.: 124</p> <p>A 13-year-old girl presents with difficulty walking. On examination she has bilateral pes cavus and is severely ataxic. Knee and ankle jerks are absent with extensor plantars. Sensory examination reveals loss of proprioception and vibration sense distally in the lower limbs. Her mother died of heart problems in her late 30s .</p> <p>Which of the following tests is most likely to be abnormal?</p> <p>Options</p> <p>A. Serum HbA1C B. Electrocardiogram (ECG) C. Trinucleotide repeat on chromosome 9 D. Trinucleotide repeat on chromosome 19 E. Serum caeruloplasmin</p>	<p>No.: 124</p> <p><b>C</b></p> <p>This girl has Friedreich's ataxia .</p> <p>Features include: progressive ataxia, scoliosis, occasional cardiac disease, areflexia, extensor plantars and impaired joint position/vibration sense. Diabetes, deafness, nystagmus and optic atrophy also sometimes occur. The mutation is a trinucleotide repeat on Ch 9. (Myotonic dystrophy is 19). Serum caeruloplasmin would be abnormal in Wilson's disease (hepatolenticular degeneration).</p>



<p>No.: 125</p> <p>A 43-year-old woman presents with right-sided hearing loss and difficulty walking which has developed over the last six months. On examination she has difficulty with tandem-walking, sensorineural deafness on the right and mild right-sided facial weakness. The corneal reflex is also reduced .</p> <p>What is the most appropriate investigation?</p> <p>Options</p> <p>A. Computed tomography (CT) without contrast          B. CT with contrast          C. Magnetic resonance imaging (MRI)          D. Lumbar puncture with cerebrospinal fluid (CSF) examination          E. Genetic testing following counselling</p>	<p>No.: 125</p> <p>C</p> <p>This lady has a probable acoustic neuroma (vestibular neurinoma). It arises from the vestibular part of cochlear nerve (CN) VIII. Often presents with unilateral hearing impairment (telephone) which progresses to complete sensorineural deafness. May be associated with vertigo, ipsilateral facial sensory symptoms and facial weakness. May eventually lead to brainstem compression and hydrocephalus. Best imaging is gadolinium enhanced magnetic resonance (MR) (will pick up small tumours) .</p> <p>Can be associated with neurofibromatoses (NF1 or NF2) bilateral.</p>
<p>No.: 126</p> <p>A 15-year-old schoolboy complains of difficulty in piano lessons because of his hands shaking. There is no significant family history. On examination he has a postural tremor with frequency of about 6 ♦ 8 Hz in both upper limbs. On finger-nose testing the tremor worsens at the end of the movement but it does not progressively worsen throughout the movement. There is no cogwheeling or bradykinesia .</p> <p>Which of the following is the most appropriate next step?</p> <p>Options</p> <p>A. Therapeutic trial of L-dopa          B. Therapeutic trial of alcohol          C. Therapeutic trial of propranolol          D. Therapeutic trial of diazepam          E. Genetic testing for trinucleotide repeat on chromosome 4</p>	<p>No.: 126</p> <p>C</p> <p>This is essential tremor which always involves the hands (and sometimes also the head and/or legs), often symmetrically, producing a postural tremor which can interfere with action, and is worse with anxiety. It is often suppressed by alcohol and responds to propranolol. Physiological tremor (8 ♦ 12 Hz) is slightly faster than essential tremor (6 ♦ 8 Hz).</p>





No.: 127

A 65-year-old woman presents with difficulty walking which has developed over the last 2 months. During this period she also reports weight loss of about 3 kg and some abdominal bloating. On examination she has difficulty with tandem walking and very mildly slurred speech. She has full range of eye movements but horizontal nystagmus. On examination of her limbs she shows dysmetria and past-pointing in the upper limbs as well as lower limb ataxia. Abdominal examination reveals ascites and a mass in the right lower quadrant .

Which of the following antibody tests is most likely to be positive?

Options

- A. Anti-yo Purkinje cell cytoplasmic autoantibodies (PCA 1)
- B. Anti-endomysial
- C. Anti-glutamic acid decarboxylase (GAD)
- D. Anti-Ro
- E. Anti- voltage gated Ca channel

No.: 127

A This is a paraneoplastic cerebellar degeneration associated with gynaecological malignancy. This is most often associated with anti-yo (or anti-Purkinje) antibodies (sometimes also anti-Hu). Anti-endomysial is associated with coeliac disease (anti-gluten Abs can be associated with cerebellar disease).

Anti-GAD	Stiff person syndrome
Anti-Ro	Connective tissue disease
Anti-voltage gated Ca channel	LEMS

No.: 128

A 64-year-old Asian man presents with a 2 year history of impotence, urinary disturbance and dizziness on standing. On examination he has bilateral miosis, a mild bilateral tremor and increased tone. In addition he is noted to have past-pointing in both upper limbs. Lying blood pressure was 145/92 and standing 105/70 .

Which of the following is the most likely diagnosis?

Options

- A. Progressive supranuclear palsy
- B. Multiple System Atrophy (MSA)
- C. Idiopathic Parkinsons Disease
- D. Corticobasal degeneration
- E. Normal pressure hydrocephalus (NPH)

No.: 128

B MSA can cause any combination of parkinsonian, cerebellar, autonomic and cerebellar features. (Shy-Drager sometimes used if autonomic problems prominent .

Progressive supranuclear palsy-rigidity, akinesia and abnormalities of (vertical then horizontal) eye movements .

Corticobasal degeneration-unilateral upper limb dystonia, apraxia, alien limb leading to dementia .

NPH-dementia, gait disturbance and incontinence, responds to shunting.



No.: 129

An 83-year-old lady presents from a residential home with progressive left sided weakness over the last 2 days. She fell on the stairs 2 days previously and her daughters have noticed that she has become increasingly weak on the left side since then. She has also become slightly disorientated. She has a history of left middle cerebral arteries (L MCA) stroke 3 years previously from which she recovered completely. On examination she was orientated to place and person but not to time. She had increased tone on the left side, with 4/5 weakness in her left arm and leg. Left sided reflexes are brisk, and the left plantar is extensor. Urgent computed tomography (CT) head reveals extra-axial concave haematoma in the right fronto-parietal region .

What is the most likely source of the bleed?

Options

- A. Ruptured berry aneurysm
- B. Cerebral venous thrombosis
- C. Middle meningeal artery laceration
- D. Tearing of bridging veins
- E. Carotid artery dissection

No.: 129

**D**

Subdural haemorrhage-concave collection due to bridging vein rupture during violent head motion. Risk factors include atrophy, alcohol, epilepsy and anticoagulant therapy. Often drained through one or two burr holes. Cerebral venous thrombosis common in hypercoagulable states. Middle meningeal artery is damaged in extradural haematomas.





No.: 130

A 32-year-old woman is referred with diplopia. In the past she has taken carbamazepine for trigeminal neuralgia but now complains of double vision for the last week. She reports no new pain or headache. Five years ago she had an episode of hand numbness which was diagnosed as carpal tunnel syndrome and resolved spontaneously. On examination, acuity is 6/6 bilaterally and pupils are responsive to light and accommodation. When she attempts to look to the right she is unable to adduct the left eye and develops nystagmus in the right eye. When the right eye is closed she is then able to adduct the left eye. She has no focal weakness but does have past pointing and an intention tremor in the right upper limb. Magnetic resonance imaging (MRI) reveals multiple hyperintense lesions, one of which enhances with gadolinium .

Which of the following is the best way to proceed?

Options

- A. Discharge and refer for interferon clinic
- B. Treat with high dose intravenous steroids
- C. Perform lumbar puncture (LP) and await results for oligoclonal bands before any treatment
- D. Refer for lesion biopsy
- E. Treat with low dose prednisolone

No.: 130

B

This lady has clinical multiple sclerosis. At present she has some cerebellar signs as well as an internuclear ophthalmoplegia. Steroids should be used in order to speed recovery. She should then be followed up appropriately. LP can be performed but there is no need to wait for the oligoclonal band result .

Trigeminal neuralgia symptoms can be caused by demyelination.



No.: 131

A 72-year-old man with known high blood pressure presents to casualty with a 12 h history of left hemiplegia and visual difficulties. He is normally treated for hypertension with atenolol and has no other medical problems. On examination his blood pressure is 180/120. Speech content is normal. He has left facial weakness and no other cranial nerve abnormalities. Swallowing is intact. He demonstrates left (L) visual neglect, ignoring events and people on his left side. He also has profound weakness of his left arm and leg (1/5 throughout) with brisk left sided reflexes and an extensor plantar reflex on the left. Urgent computed tomography (CT) reveals a right middle cerebral artery territory infarction .

Which of the following is the most appropriate intervention for this patient in the acute setting?

Options

- A. Adjust antihypertensive therapy to bring systolic bp to less than 140
- B. Give aspirin 150 mg
- C. Start IV heparin
- D. Give intravenous recombinant tissue plasminogen activator (rTPA)
- E. Start clopidogrel

No.: 131

B

This man suffered from stroke with symptom onset 12 h ago. It is too late for thrombolysis and he has a confirmed infarct. In this situation, aspirin is the most appropriate evidence-based therapy. Blood pressure (BP) should not be adjusted so acutely after stroke, because of the possibility of causing infarction of critically perfused regions. After 2 weeks, this gentleman may need further anti-hypertensive therapy. There is no need for further antiplatelet intervention. There is no role for intravenous (IV) heparin in acute cerebral infarction.

No.: 132

A 29-year-old teacher presents with 6 ♦ 12 months history of increasing depression and apathy and inability to concentrate at work. In addition she started to complain of painful arms 4 months ago. On examination she has profound cognitive impairment with ataxia and prominent myoclonus. Magnetic resonance imaging (MRI) scan reveals bilateral pulvinar high signal and electroencephalogram (EEG) shows non-specific slowing .

What is the diagnosis?

Options

- A. Subacute Sclerosing Panencephalitis
- B. Sporadic Creutzfeldt-Jakob disease (CJD)
- C. Whipple ♦ s Disease
- D. New variant CJD
- E. Wilson ♦ s Disease

No.: 132

D







<p>No.: 133</p> <p>A 33-year-old man being treated for human immunodeficiency virus (HIV) presents with rapid cognitive decline and weakness over the last 2-3 weeks. On examination he is alert and afebrile but not orientated in place or time. He is found to have a left homonymous hemianopia, and left hemiparesis and is profoundly ataxic. Magnetic resonance imaging (MRI) brain demonstrates asymmetrical signal change with no mass effect or contrast enhancement.</p> <p>What is the most likely diagnosis?</p> <p>Options</p> <p>A. CNS lymphoma B. Progressive Multifocal leucoencephalopathy (PML) C. Cerebral Toxoplasmosis D. Cerebral tuberculosis (TB) E. Cytomegalovirus (CMV) infection</p>	<p>No.: 133</p> <p>B</p> <p>PML :</p> <p>Patients with PML are usually alert with little headache and no fever. The white matter is affected in the cerebral hemispheres, brainstem and cerebellum. Polymerase chain reaction (PCR) testing for JC virus in the cerebrospinal fluid (CSF) may be helpful. PML may also occur in chronic leukaemias.</p>
<p>No.: 134</p> <p>A 32-year-old woman who is 6 months pregnant presents with sudden new onset headache, nausea and vomiting. She is pregnant with her 2nd child and has had no previous complications of pregnancy. On examination she has bilateral papilloedema but no other cranial nerve abnormalities. There is no arm or leg weakness.</p> <p>Which of the following investigations would be most helpful in finding an underlying cause for her presentation?</p> <p>Options</p> <p>A. Computed tomography (CT) head without contrast B. Magnetic resonance imaging/magnetic resonance venography (MRI/MRV) C. Lumbar puncture D. Angiography E. Visual Evoked Potentials</p>	<p>No.: 134</p> <p>B</p> <p>This woman presents with symptoms and signs of rapidly raised intracranial pressure. In this case, a venous sinus thrombosis must be ruled out as a cause for the raised pressure. This can be shown on CT but is most easily shown on MRI with MRV and can be treated with anticoagulation.</p> <p>Idiopathic (benign) intracranial hypertension is the likely diagnosis if there is no sign of thrombosis. Lumbar puncture would confirm raised pressure and the patient could be treated medically (acetazolamide, frusemide), with repeated lumbar puncture or neurosurgically.</p>



No.: 135

A 38-year-old woman presented with recurrent episodes of right-sided hemiplegia lasting up to 30 min. She had previous lacunar strokes. She gave a long-standing history of migraine with aura. She was a non-smoker. Her father died at the age of 55 with recurrent strokes and dementia .

On examination, her blood pressure was 110/76 mmHg and her mini mental test score was 21/30 .

Investigations showed that her plasma glucose and total cholesterol were within normal limits. Echocardiography showed a structurally normal heart. An MRI (magnetic resonance imaging) brain shows multiple lacunar strokes and high signal changes within the external capsule and anterior temporal lobe .

What is the most likely diagnosis?

Options

- A. CADASIL
- B. Homocystinuria
- C. MELAS
- D. Multiple sclerosis
- E. Vasculitis

No.: 135

A

CADASIL stands for cerebral autosomal dominant arteriopathy with sub-cortical infarcts and leukoencephalopathy. It is a rare autosomal dominant condition, which affects patients with recurrent strokes after the age of 30. Many patients give a history of migraine with aura. Cognitive decline and impairment follows multiple lacunar infarctions of the frontal white matter and basal ganglia.





No.: 136

Mrs. S is a 55-year-old lady who has been referred to the neurologist with a possible diagnosis of Parkinson's disease. In the general practitioner (GP) letter, it stated that the patient had just recently joined the practice following a move of residence to be closer to her daughter. Her symptoms started 3 months ago when she noticed a mild tremor of her hands but this has been progressive since and now she finds it difficult to hold a cup without spilling its contents .

Previous to this, Mrs. S was diagnosed with reversible obstructive airways disease following a lower respiratory tract infection and was prescribed a salbutamol inhaler on an as required basis. Other medication includes ciclosporin following a liver transplant a year ago due to cirrhosis of the liver from an unknown cause .

How would you treat this patient?

Options

- A. Reduce dose of ciclosporin
- B. Reduce the dose of salbutamol
- C. Start oral benztropine
- D. Start oral L-dopa
- E. Stop salbutamol

No.: 136

A

Both ciclosporin and salbutamol can cause tremor. However, as she takes ciclosporin regularly it is more likely to be the culprit and should be adjusted first.





No.: 137

A 58-year-old man was admitted to Casualty from home with a 4-day history of mild headache. On the day of admission his wife noted confused speech and difficulty in expressing himself. A grand mal seizure prompted her to call for an ambulance .

On examination in A and E he had a Glasgow coma scale score of 14/15. His temperature was 38.1°C. Heart rate was 80 beats per minute and regular and his blood pressure was 124/80 mm Hg. There was no evidence of neck stiffness. Neurological examination revealed an expressive dysphasia and mild right-sided weakness .

An magnetic resonance imaging (MRI) scan of his brain showed abnormal signals in both temporal lobes with some degree of mass effect bilaterally .

A lumbar puncture was performed and cerebral spinal fluid (CSF) analysis showed :

Opening pressure Normal  
CSF protein Normal  
CSF glucose Normal  
Cells 8 lymphocytes/mm<sup>3</sup>  
Gram stain Negative

What is the most likely diagnosis?

Options

- A. Acute disseminated encephalomyelitis
- B. Bacterial meningitis
- C. Herpes simplex encephalitis
- D. Lyme disease
- E. Tuberculous meningitis

No.: 137

The clinical features here are typical of HSV encephalitis, but there are no pathognomonic features of this condition. Therefore a high degree of clinical suspicion for the diagnosis should always be borne in mind in the febrile patient with a headache. The key here is the abnormal temporal lobe appearances on MRI and the relatively unremarkable CSF findings with a mild lymphocytosis only.







No.: 138

You are asked to review a patient on a long-term neurological stay ward who has developed a fever. The patient is a 38-year-old man who had been on the ward for 1 year and had an indwelling urinary catheter. The nurses say that there has been no change in the patient's neurological status since admission. The patient is unable to give any history .

On examination, the patient is lying in bed with his eyes open. He was febrile with a temperature of 38.0 °C. He is undistressed and has a respiratory rate of 14 per minute and pulse 75 beats per minute, regular. Blood pressure 115/70 mm Hg. His pupils are reactive to light, but eye movements appear to be random and he does not seem to be able to track a moving object. He does not respond to verbal commands, but he moves all four limbs spontaneously albeit without clear purpose. Pressure on the nail bed elicits a flexor response. Both plantar responses are extensor. The patient makes moaning noises but there is no coherent speech during your examination. On occasions patient laughs spontaneously but not for any specific reason. The nurses report that he has a normal sleep cycle and that he is fed by a gastrostomy feeding tube .

Urinalysis showed the presence of white cells, protein and nitrites and microscopy revealed Gram-negative rods .

What is the neurological diagnosis?

Options

- A. Akinetic mutism
- B. Brain death
- C. Coma
- D. Locked-in syndrome
- E. Permanent vegetative state

No.: 138

E

The description is fully in keeping with permanent vegetative state. The key to the diagnosis is a complete lack of awareness of surroundings in the presence of intact sensory pathways (e.g. his pupillary responses are intact but he cannot track moving objects). In contrast to brain (stem) death, normal physiological control of respiration and circulation is maintained, and spontaneous but purposeless movements and verbalisation occur. He is not comatose because his GCS is >8 (E4 V2 M3) and locked in syndrome is a paralysis of voluntary muscles except for eye movements through which the patients can demonstrate awareness. Patients with akinetic mutism do not move or verbalise.



No.: 139

A 40-year-old man presents with diplopia, dysarthria and difficulty with swallowing. These had developed after a gastro-intestinal illness whilst camping during which he had suffered nausea and vomiting. Over the next few days he developed weakness of the upper and lower limbs. On day 4 he was unable to walk unaided. He denied any sensory symptoms or bladder disturbances. His previous medical history is unremarkable. He is a non-smoker, and does not drink alcohol .

On examination he was afebrile and cardiovascular, respiratory and abdominal were all normal. His higher mental function was normal. There were no signs of meningism. Cranial nerve examination showed bilateral dilated and fixed pupils. He had binocular diplopia but no obvious ophthalmoplegia. He was dysarthric with weak cough. His vital capacity was 3.15 standing and 2.00 lying flat. He had lower motor neuron tetraparesis of power 3/5. He was hyporeflexic with normal sensation and was unable to walk unaided .

Investigations including full blood count, urea and electrolytes, liver function tests, serum calcium, thyroid function tests, autoantibody screen, erythrocyte sedimentation rate and serum C-reactive protein were normal .

His electrocardiogram and chest radiograph were normal. A computed tomography (CT) scan of his brain was normal, as were nerve conduction studies and an electromyogram (EMG) .

What is the most likely diagnosis?

Options

- A. Guillain-Barre syndrome
- B. Lyme disease
- C. Myasthenia gravis
- D. Botulism
- E. Vasculitis

No.: 139

D

The history and disease progression are typical of botulism, with preceding malaise followed by cranial nerve involvement then descending generalised lower motoneuron (LMN) weakness. The absence of sensory symptoms and normal nerve conduction studies make Guillain-Barre extremely unlikely. The neurotoxin is absorbed from the gut or an infected wound and blocks synaptic transmission in cholinergic nerve fibres. The rapid progression and normal EMG rule out myasthenia gravis.



<p>No.: 140</p> <p>A 50-year-old man presents with a 6 month history of slurring of speech and diplopia. His wife reports that his face has become expressionless and his right eyelid has developed a variable droop. All his symptoms are worse in the evening .</p> <p>What is the best diagnostic clinical examination:</p> <p>Options Choose 1</p> <p>A. Count numbers up to 50 aloud B. Demonstration of diminished reflexes C. Demonstration of tongue fasciculations D. Gait E. Pupil reaction to light</p>	<p>No.: 140</p> <p>A</p> <p>The history is strongly suggestive of myasthenia gravis, therefore the demonstration of fatiguability by asking the patient to count aloud will be the most helpful from the list above.</p>
<p>No.: 141</p> <p>A 80-year-old-man presented with a sudden onset of right-sided monocular painless visual loss lasting 1 minute. He described the visual loss as a curtain descending across his vision. His is known to be hypertensive. An ECG showed sinus rhythm with occasional supra-ventricular ectopics. Doppler of his carotids showed right external carotid artery stenosis of 90% and right internal carotid artery stenosis of 50% .</p> <p>What is the most appropriate treatment?</p> <p>Options Choose 1</p> <p>A. Aspirin B. No treatment C. Right carotid angioplasty D. Right carotid endarterectomy E. Warfarin</p>	<p>No.: 141</p> <p>A</p> <p>Amaurosis fugax is a form of transient ischemic attack (TIA) for which the cornerstone of treatment remains aspirin. The 90% external carotid stenosis is a red herring as only the internal carotid is relevant. The stenosis in this vessel is not high grade enough on the current evidence base to recommend endarterectomy or stenting.</p>



No.: 142

A 29-year-old woman presented with weakness of the left leg that lasted for 8 weeks. Two years ago she had presented with numbness over right side of her face and arm that lasted for 6 weeks .

Neurological examination is now normal. Magnetic resonance imaging (MRI) of her central nervous system (CNS) shows two high signals; one in the pons and one in cervical cord. There is also a small thoracic neurofibroma but no cord compression .

What is the most likely diagnosis?

Options Choose 1

- A. Multiple sclerosis
- B. Neurofibromatosis
- C. Neurosarcoidosis
- D. Posterior circulation strokes
- E. Vasculitis

No.: 142

A

This woman has symptoms and imaging consistent with multiple episodes of demyelination separated in space and time, making multiple sclerosis (MS) the most likely diagnosis (by definition).

No.: 143

A 48-year-old man suffered a sudden weakness of his left arm and leg which caused him to fall. He was helped to his feet but his left arm and leg felt stiff. In addition, he complained of seeing "double ."

On examination, on the left side there was spastic paresis with a positive Babinski sign and loss of vibratory and positional sense. The patient walked with an ataxic gait. Pain and temperature sensations on the body were normal. There was diplopia when the patient look toward the right side. At rest the right eye deviated internally. There was a paralysis of conjugate gaze toward the right, i.e., the right eye did not move laterally through the left eye did move toward the right side .

What is the most likely site of the lesion?

Options

- A. Midbrain
- B. Pons
- C. Medulla
- D. Internal capsule
- E. Cerebellum

No.: 143

B

This is a case of crossed hemiplegia due to a right pontine lesion .

This patient has spastic weakness typical of upper motor neuron syndrome contralaterally due to involvement of the right pyramidal tract. Positional deficits and ataxic gait may be due to injury of the medial lemniscus. Gaze paralysis is due to injury of the nearby ipsilateral VI nerve fibers as they exit lateral to the pyramidal tract.





No.: 144

A 50-year-old man noticed that he felt no pain when he nicked the right side of his face while shaving. The neurological exam revealed diminished pain and temperature sensation on the right side of his face and there was no corneal reflex on the right side either. The muscles of mastication were weak on the right and when asked to protrude his jaw it moved asymmetrically toward the right side. There was a diminished jaw jerk response.

What is the most likely site of his lesion?

Options

- A. Right pons
- B. Left pons
- C. Right medulla
- D. Left medulla
- E. Right midbrain

No.: 144

A

This patient has involvement of both sensory and motor components of the right trigeminal nerve, indicating involvement of the right pontine region.

No.: 145

A 55-year-old woman awoke with weakness of the right arm and leg. Her husband spoke to her and she understood him but she was unable to speak in response. The doctor observed a flattened nasolabial fold on the right; on command she could only show her teeth on the right but her brows could be wrinkled symmetrically. Her tongue deviated to the right when protruded. The upper right extremity had a spastic paralysis, the lower limb was less weak with mild hypertonia, hyperreflexia, and a positive Babinski. Sensory and cerebellar exams were normal. She was frustrated by her difficulty in finding the right words in response to questions and her sentences were short and incomplete. Her speech was slurred making words difficult to understand. Where is the lesion?

Options

- A. Thalamus
- B. Internal capsule
- C. Cerebral cortex
- D. Midbrain
- E. Pons

No.: 145

C

Her spastic paralysis was more severe in the arms than the legs suggesting a cortical lesion rather than the internal capsule where the fibers are compact and more likely to be damaged together resulting in weakness of equal severity. Right-sided paralysis of the lower face and tongue (Slurred speech) implicate corticobulbar fibers. She had trouble with the expressive aspects of language (motor aphasia) rather than comprehension. This suggests that in the dominant left hemisphere Broca's motor speech area was affected rather than Wernicke's area. The sudden onset suggests occlusion of branches of the middle cerebral artery.



<p>No.: 146</p> <p>A 60-year-old anatomist was demonstrating a dissection when he dropped the forceps from his left hand. At the same time his speech became slurred and as he left the room he dragged his foot. In the emergency room, he was alert and well orientated. In spite of the slurring of speech he was coherent and the content was good. When asked to look to the left his eyes would not pass the midline. The visual exam showed a left homonymous hemianopia. He could wrinkle his brow on both sides but in attempting to blow out his cheeks only the right side responded. There was a spastic paresis of the left arm and leg. Pain and temperature were preserved on both sides but discriminative touch was impaired on the left and he was able to identify objects placed in the left hand .</p> <p>Where is the lesion?</p> <p>Options</p> <p>A. Mid cervical cord B. Midbrain C. Frontal motor cortex D. Mid pons E. Internal capsule</p>	<p>No.: 146</p> <p>E</p> <p>Left spastic hemiparesis suggests an upper motor neuron lesion of the corticospinals above the mid-cervical cord; weakness of the left lower face suggests a lesion of the right corticobulbar fibers above the mid-pons. Loss of proprioception with sparing of pain sensation suggests a lesion of the sensory systems above the thalamus since pain can be appreciated at thalamic levels. Destruction of the right frontal eye fields, or the corticobulbar fibers e.g., genu of the internal capsule, would result in the inability to move the eyes to the left. A left visual defect suggests a post chiasmal lesion e.g. optic radiations. The genu and posterior limb of the internal capsule including the optic radiations are a likely site for this lesion. It is supplied by branches of the middle cerebral artery which were occluded in this patient.</p>
<p>No.: 147</p> <p>A 72-year-old man complains of headaches and malaise of three weeks duration. He has also had difficulties getting out of his car and experienced peculiar facial pain on chewing meat .</p> <p>Hb 136g/l; WCC 5.8 x10<sup>9</sup>/l (normal differential); Platelets 412 x10<sup>9</sup>/l; ESR 78 mm/hr .</p> <p>What important differential must you consider :</p> <p>Options</p> <p>A. Small cell carcinoma lung B. Polymyositis C. Polymyalgia rheumatica D. Motor neurone disease E. Systemic lupus erythematosus</p>	<p>No.: 147</p> <p>C</p> <p>This combination of headache, proximal muscle weakness and an elevated ESR suggests a systemic disorder. A connective tissue disease such as polymyalgia could produce this picture. Temporal arteritis represents relatively localised manifestation of the disorder in inflammation of small arteries of the scalp and head. It is important to pick up such disorders as they are relatively easy to treat and can produce irreversible deficits, such as blindness, if left untreated.</p>

No.: 148



This 50-year-old lady complains of finger paraesthesia.  
What is the diagnosis?

Options

- A. Carpal tunnel syndrome
- B. Ulnar nerve palsy
- C. Pancoast syndrome
- D. Motor neurone disease
- E. Rheumatoid arthritis

No.: 148

A

Localised wasting of the thenar eminence in conjunction with finger paraesthesia makes carpal tunnel syndrome the most likely diagnosis. Ulnar nerve palsy and Pancoast syndrome would tend to affect the small muscles of the hand more generally. Motor neurone disease would, typically, not involve sensory disturbance. Although rheumatoid arthritis is a cause of carpal tunnel syndrome, the joint abnormalities are not seen here.



No.: 149



Which of the following is very uncommon in this disorder?

Options

- A. Bilateral acoustic neuromas
- B. Pheochromocytoma
- C. Renal cysts
- D. Lisch Nodules
- E. Scoliosis

No.: 149

A

The cutaneous manifestations are those of NF type 1.  
Acoustic neuromas occur in NF type 2 .  
Pheochromocytoma is found in 5% NF type 1.



No.: 150



A 29-year-old woman is admitted after a fit. She has chronic headaches. What is the diagnosis :

Options

- A. Acoustic neuroma
- B. Intracerebral haemorrhage
- C. Cerebral toxoplasmosis
- D. Glioblastoma
- E. Cerebrovascular accident

No.: 150

D

This MRI shows a large intra-cerebral mass with central necrosis and a marked compression effect.

No.: 151

A 66-year-old diabetic smoker is admitted with acute left sided hemiparesis and dysphasia. He is treated for hypertension with bendrofluazide and is on gliclazide for his diabetes. Which of the following would not be a contraindication to the administration of thrombolytic therapy :

Options

- A. A blood pressure of 210/180
- B. The presence of haemorrhage on a CT scan
- C. Previous history of myocardial infarction
- D. A delay of 24 hours since the onset of his symptoms
- E. Lack of availability of CT scanning facilities

No.: 151

C

Trials have been carried out to assess the effects of treating cerebrovascular infarction with recombinant tissue plasminogen activator. The drug should be given within three hours of the onset of symptoms. CT scanning is required to exclude haemorrhage and rt-tpa should not be given in cases of very extensive infarction or with unstable blood pressure.



No.: 152

A man of 35 sees you for an off-work certificate having badly injured his back 5 days previously. He mentions that since the previous evening he has had to stand for a couple of minutes before being able to pass urine. You examine him and find that tendon reflexes are intact and his bladder is not palpable, but there is an area of reduced sensation around his anus and extending over his perineum to his scrotum .

Which two of the following are true?

Options Choose 2

- A. You should encourage physical activity
- B. An early return to work speeds recovery
- C. Rectal examination may show a lax anal sphincter
- D. Normal tendon reflexes suggest that this is not a prolapsed disc impinging on a nerve root
- E. He requires urgent referral for a magnetic resonance imaging (MRI) scan
- F. He should see a neurosurgeon or a back surgeon before the day is out
- G. The absence of obvious sphincter involvement is reassuring
- H. Nerve conduction studies of the lower limbs will define the problem
- I. Normal fundoscopy would be an important finding
- J. A history of travel to Spain is likely to be relevant

No.: 152

C F

This is a Cauda Equina compression syndrome, sometimes called the numb bum syndrome. It is a serious emergency and although rare it must not be missed. Encouragement of physical activity and early return to work is useful in most cases of back injury but this is an exceptional circumstance. The anal sphincter may well have reduced tone. Like the detrusor muscle it is S2, 3, 4 as is sensation around the anus, over the perineum and posterior ♦ of the scrotum (or labia majora), the anterior ♦ being L1, 2. The knee and ankle jerks are at the level of L3, 4, and S1, respectively and so are spared. This condition needs decompression as a matter of extreme urgency before nerve damage becomes irreversible. A neurosurgeon or specialist back surgeon should see him that same day. An MRI of the lumbar spine and sacral region is the investigation of choice.

No.: 153

A 46-year-old woman is complaining of increasing difficulties driving her car and climbing stairs. She has developed a nasal quality to her speech and is repeatedly choking on drinks. On examination she has proximal muscle weakness, but no obvious wasting or fasciculation. Palatal weakness is confirmed on examination. Reflexes are reduced but present and plantar response is flexor. Respiratory rate is 22/min and blood pressure is 115/65 mmHg .

The following results are obtained :

Na 138mmol/l

Hb 139g/l

K 4.2mmol/l

WCC 6.8 x10<sup>9</sup> /l

Urea 4.5 mmol/l

Plat 192x10<sup>9</sup> /l

Creat 72//mol/l

ESR 13mm/hr

Albumin 38 g/l

CK 25 U/l

Chest X-ray shows a lobulated mass projecting over the aortic arch .

What is the medical treatment :

Options

A. Polychemotherapy

B. Radiotherapy

C. Oral steroids

D. Plasmaphoresis

E. Pyridostigmine

No.: 153

E

The diagnosis is myasthenia gravis, as confirmed by the clinical findings. Generalised weakness that involves the bulbar musculature is most likely to be either a neuromuscular junction disorder or motor neuron disease. Absence of fasciculations is strongly against motor neuron disease. The diagnosis is strongly supported by the probable thymoma seen on the imaging. This may need resection or chemotherapy, but in the acute phase the important thing is to control the weakness.

No.: 154



What is the diagnosis?

Options

A. Generalised osteoarthritis

B. Gout

C. Syringomyelia

D. Septic arthritis

E. Trauma

No.: 154

C

This shows a charcot joint of the elbow, it is swollen, disrupted and mis-aligned. General OA would not tend to affect only the elbow in this way. Gout would not produce mis alignment. Septic arthritis and trauma would not affect the joint in this, chronic, way .

Syringomyelia may produce Charcot's joints at the elbow or shoulder. Other causes include tabes dorsalis and diabetes (although the lower limbs are usually involved).

No.: 155



Which of the following is not a complication of this disorder?

Options

- A. Deafness
- B. Cardiac failure
- C. Cataracts
- D. Optic atrophy
- E. Cranial nerve palsies

No.: 155

**C**

This patient has Paget's disease. The complications are as follows :

- Fractures
- Cord compression
- Optic atrophy
- Cranial nerve palsies
- High output cardiac failure
- Hypercalcaemia
- Hydrocephalus
- Headaches
- Seizures







No.: 156

A 72-year-old man is referred with a 2 month history of progressive disorientation and falls. Two weeks beforehand, he locked his wife out of their house, claiming that she was trying to steal his clothes. He had also telephoned the police in the middle of night, claiming that he could see men hiding under his bed. On examination, his face is expressionless, his speech is quiet and monotonic. There are no cranial nerve palsies, otherwise. Increased tone is present in all 4 limbs, with a slow festinant gait. Reflexes, power and sensation are all normal. Halfway through your examination he tells you that he is leaving the room, because of the "lobsters coming through the window". Unfortunately, therefore, formal cognitive testing and basic investigations cannot be performed. On the basis of this evidence, what is the most likely diagnosis?

Options

- A. Parkinson's disease
- B. Progressive supra-nuclear palsy
- C. Multiple system atrophy
- D. Normal pressure hydrocephalus
- E. Lewy body dementia

No.: 156

This man has parkinsonism, with bradykinesia and rigidity. The florid visual hallucinations and paranoid ideation make Parkinson's disease unlikely. The normal eye movements and normal postural blood pressure mitigate against a Parkinsonism plus syndrome, while the lack of incontinence and gait abnormalities make normal pressure hydrocephalus less probable.

Parkinsonism with dementia, paranoia and visual hallucinations is found in dementia with Lewy bodies.

No.: 157

A 44-year-old man is brought to see you by his wife because he has become increasingly irritable over the past few months. She reports that he falls asleep frequently during the day, and has been generally more "run down" and lethargic. She has also notes that his breathing is sometimes laboured during the night. His blood pressure is 168/115, but, apart from obesity, his examination is normal. Which factor has probably not contributed to this presentation :

Options

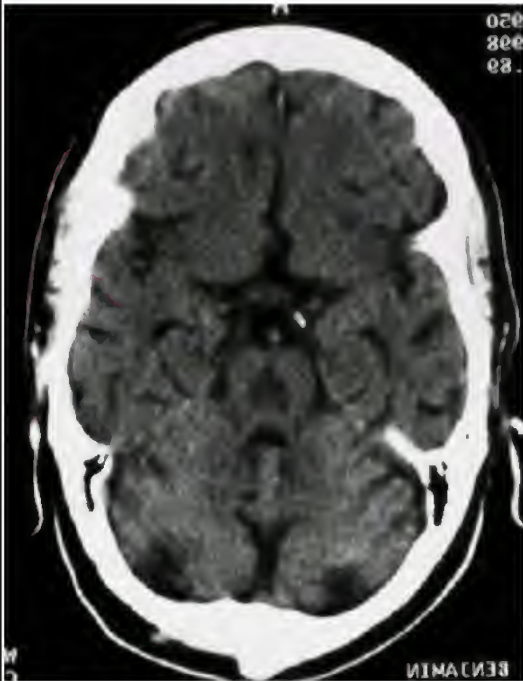
- A. His weight
- B. Alcohol consumption
- C. Smoking
- D. Benzodiazepine use
- E. Disturbances of the adrenal axis

No.: 157

The picture of daytime somnolence in conjunction with cognitive problems and sleep related disturbance is strongly suggestive of chronic sleep apnoea. This relates to episodes of apnoea during the night which lead to disrupted sleep and daytime difficulties.

Obesity, ear, nose and throat disease and smoking are risk factors. Alcohol and benzodiazepines alter the normal architecture of sleep, producing less useful sleep and worsening the problems caused by sleep apnoea. It is important to rule out insomnia in the history. Depression, narcolepsy and some neurodegenerative diseases can produce significant disturbances of sleep.

No.: 158



A 26-year-old homeless man is brought into casualty drowsy and unresponsive. He is very poorly nourished, with the stigmata of chronic liver disease. He has impaired conjugate eye movements and brisk reflexes throughout. A scan is performed.

What abnormality is shown :

Options

- A. Bilateral occipital infarcts on CT
- B. Bilateral occipital infarcts, MRI, Axial FLAIR
- C. Left carotid artery thrombus, on CT
- D. Central pontine myelinolysis, on CT
- E. Central pontine myelinolysis on MRI Axial FLAIR

No.: 158

D

Central pontine myelinolysis is always seen in the context of another serious illness, commonly chronic alcoholism. The underlying cause is thought to be rapid correction of hyponatraemia. The pontine lesion is of differing sizes, therefore presentation may take a number of forms. Generally a pseudobulbar palsy in conjunction with a spastic paraplegia which is slowly progressive is characteristic. Unfortunately there is no treatment when the lesion is established.

- Radiology : Low density on Pons on CT - High signal (edema) on T2 weighted MRI

No.: 159

A 56-year-old hypertensive man was admitted to A & E with a 2 day history of vertigo and unsteadiness. He then developed nausea, vomiting, dysphagia, hoarseness, ataxia, Left sided facial pain and right-sided sensory loss in the extremities. He was unable to walk. On examination, he had a left ptosis, left arm ataxia, and sensory testing revealed loss of pain and temperature sensation in the right arm and leg. MR imaging in this patient might show which of the following :

Options

- A. Basilar artery aneurysm
- B. Right lateral medullary infarction
- C. Left lateral medullary infarction
- D. Left medial medullary infarction
- E. Right parietal lobe infarction

No.: 159

C

This patient has a lateral medullary syndrome (Wallenberg's). This is made up of :

- Horner's syndrome
- Nystagmus
- Ipsilateral 5th, 6th, 7th and 8th cranial nerves
- Bulbar Palsy
- Ipsilateral cerebellar signs
- Contralateral pain and temperature loss

It may result from pathology affecting the posterior inferior cerebellar artery, any of the lateral medullary arteries or the vertebral artery .

Medial medullary syndrome consists of ipsilateral 12th nerve palsy with contralateral hemiplegia and loss of vibration and joint position sense.

No.: 160



This 27-year-old man has epilepsy. What is the diagnosis?

Options

- A. Lymphoma
- B. Syphilis
- C. HIV
- D. Sarcoid
- E. Cystercercosis

No.: 160

E

There appear to be subcutaneous lesions on the chest wall. Taken in conjunction with the history of seizures, this most likely represents cystercercosis. Lymphoma would be unusual in such a young man. Cystercercosis is a leading cause of epilepsy in the developing world, due to the formation of cysts within the brain.



No.: 161



This 15-year-old boy's mother noticed that his face "didn't look right" . What is the diagnosis?

Options

- A. Ramsay Hunt syndrome
- B. Bell's palsy
- C. Sarcoid
- D. Hemifacial spasm
- E. Oculogyric crisis

No.: 161

B

This patient demonstrates left sided facial weakness that involves the eyelid (note Bell's phenomenon - eye rolling upward on attempted closure). This is a lower motor neuron facial nerve palsy .

Ramsay Hunt is a facial palsy resulting from herpes zoster, sarcoidosis usually produces bilateral facial nerve palsies. Other causes include parotid tumours and lyme disease.







<p>No.: 162</p> <p>A 72-year-old woman is seen with a four month history of difficulty swallowing liquids. Her partner has noticed a change in her voice, it has become quieter and less distinct. She feels that her problems have been progressive rather than fluctuant. There is no past medical or drug history .</p> <p>On examination, Pupils, fundoscopy and eye movements are normal. There is no evidence of a facial palsy, and hearing is intact in both ears. The tongue is not wasted, although you notice some fasciculations. Reduction in elevation of the palate on the right is evident and the tongue, when protruded, deviates to the right. Palatal elevation is deviated toward the right. Sensory examination is entirely normal .</p> <p>Apart from a brisk jaw jerk, the rest of the examination is entirely normal .</p> <p>MRI scan of the brain is normal. Lumbar puncture reveals a protein concentration of 0.1, with 1 lymphocyte and a glucose of 3.4 (serum is 5.6) .</p> <p>What is the most likely diagnosis :</p> <p>Options</p> <p>A. Myasthenia Gravis B. A jugular foramen syndrome C. Lesion at the cerebello-pontine angle D. Multiple sclerosis E. Motor neurone disease</p>	<p>No.: 162</p> <p>E</p> <p>This is a difficult clinical problem with an initially wide diagnosis which is subsequently narrowed down .</p> <p>The main feature of the presentation is a bulbar palsy, although brisk jaw jerk is unusual in this setting. Myasthenia is unlikely in the absence of fluctuating course and eye signs .</p> <p>Multiple sclerosis is also unlikely, as this illness is monophasic with a pattern of distribution which would be unusual for MS. The normal MRI supports this assertion. It is unlikely that a lesion at the cerebello-pontine angle or jugular foramen would be missed on scanning. The pattern does not suggest a CP angle lesion (VII and VIII are intact), a jugular foramen syndrome would also tend to affect the shoulder and neck. The signs are bilateral (right XII, left IX/X). The combination of upper and lower motor signs with the absence of sensory involvement makes MND the probable diagnosis.</p>
<p>No.: 163</p> <p>The mother of a 20-year-old student contacts you because she is concerned about her son. He is sleeping for shorter periods of time, sometimes going for days without sleep. He has become aggressive and tense during the day. She thinks that it may be to do with the pressure of exams that are looming, although she knows that he has recently been socialising with a different group of friends. She is concerned about illicit drug use. The use of which drug would not explain his change in sleep pattern :</p> <p>Options</p> <p>A. Amphetamines B. Cocaine C. Khat D. Proprietary caffeine tablets E. Heroin</p>	<p>No.: 163</p> <p>E</p> <p>The information you are given suggests that if drugs are being used, they are likely to be stimulants. Broadly speaking, these include cocaine, amphetamines, ecstasy and khat. Over the counter caffeine tablets are also available. It is important to rule out other causes of sleep disturbance including depression, endocrine disorders and certain neuro-degenerative diseases. A urinary drug screen may be requested, although this should be done with the patient's consent.</p>

No.: 164

A 64-year-old woman developed fatigue and depression over a period of 6 months. She had no family history of neurological disease. Examination revealed mild cognitive impairment and intermittent myoclonic jerks. Full blood count, Electrolytes, Thyroid function were all normal. A CT scan of her brain revealed no abnormalities. EEG revealed disorganised background activity with periodic sharp wave discharges that occurred repetitively at 1s intervals . Which of the following is the most likely diagnosis?

Options

- A. Multi-infarct dementia
- B. Tabes Dorsalis
- C. Friedreich's ataxia
- D. Chronic Subdural haemorrhage
- E. Spongiform encephalopathy

No.: 164

E  
Progressive cognitive deterioration in association with unusual neurological features such as myoclonic jerks strongly suggests an encephalopathic process .

Chronic subdural haematoma and multi-infarct disease would produce abnormalities on CT scanning. Friedreich's Ataxia and Tabes Dorsalis do not produce this clinical picture .

Diagnosis of spongiform encephalopathy can be difficult in the early stages. It is important to distinguish subacute spongiform encephalopathy from the slower dementia accompanied by pyramidal and extra-pyramidal features that was originally described by Creutzfeldt and Jacob.

No.: 165



This 50-year-old man is noted to have this fundoscopic appearance. What is the diagnosis :

Options

- A. Diabetic retinopathy
- B. Hypertensive retinopathy
- C. Drusen
- D. Cholesterol emboli
- E. Hyperlipidaemia

No.: 165

C  
Multiple, discrete lesions like this around the macula are drusen. They occur in individuals over 40 and represent abnormal accumulations in the pigment epithelium of the retina. They may be a precursor of senile macular degeneration .

Diabetic and hypertensive retinal changes typically have involvement of the vessels with haemorrhages and changes in the calibre of the arterioles respectively . Cholesterol emboli may be visible within the vessels, not in a scattered pattern like this.

No.: 166



With which condition is this not associated?

Options

- A. Abetalipoproteinaemia
- B. Laurence-Moon-Biedl Syndrome
- C. Refsum's disease
- D. Cerebrotendinous xanthomatosis
- E. Friedreich's ataxia

No.: 166

D

The appearances are those of retinitis pigmentosa .

This is seen in :

Lawrence-Moon syndrome (along with polydactyly, hypogonadism and obesity)  
 Abetalipoproteinaemia - with acanthocytosis and spinocerebellar degeneration  
 Friedreich's Ataxia  
 Refsum's disease  
 Cerebrotendinous Xanthomatosis is a rare disorder of abnormal cholesterol deposition in the CNS, lungs and tendon sheaths.

No.: 167

A 42-year-old businessman from Zaire who is known to have HIV (being treated at a local hospital) is referred from the immunologists for investigation of recent neuropathic type pain. Which feature of the history is least likely to be relevant :

Options

- A. Nucleoside use
- B. Alcoholism
- C. Treatment for multi-drug resistant TB
- D. A CD4 count of below 200
- E. A vegetarian diet

No.: 167

E

Painful neuropathy in patients with HIV has a number of causes. They include :

Isoniazid or dapsone treatment  
 Nucleoside analogue treatment  
 HIV neuropathy (reportedly more common with a CD4 count of less than 200)  
 Alcohol use  
 Diabetes  
 B12 deficiency - may be related to vegetarian diet, but less likely than the other causes, consider if strict vegan





<p>No.: 168</p> <p>A 53-year-old woman is admitted to hospital having had a severe, occipital headache. A CT of her head shows blood in the inter hemispheric space. Which of the following is not a well recognised complication of her condition :</p> <p>Options</p> <p>A. Cardiac Arrhythmias B. Hydrocephalus C. Cerebral Ischaemia D. Chronic Headache E. Peripheral motor weakness</p>	<p>No.: 168</p> <p><b>E</b></p> <p>This lady has a subarachnoid haemorrhage on the basis of her scan appearances. There are several complications .</p> <p>Cardiac arrhythmias are well documented, hydrocephalus results from disturbance of CSF drainage, Ischaemia results from vessel spasm locally. Following an acute episodes, patients may suffer with severe chronic headaches that are difficult to treat .</p> <p>A peripheral neuropathy may result from a prolonged stay on ITU (which is often required in these cases), although it is not thought of as a direct complication.</p>
<p>No.: 169</p> <p>A 73-year-old man exhibited excessive sleepiness, slowing of movements, mild depression and proximal muscle weakness. Examination revealed painful swelling of his right knee. Blood tests were as below:Na 138 K 4.2 Ur 14mg/dl Cr 1.0mg/dl Ca 2.98 PO4 1.0 Albumin 36 What is the most likely diagnosis :</p> <p>Options</p> <p>A. Hypothyroidism B. Parkinson's Disease C. Hyperparathyroidism D. Hepatolenticular degeneration E. Lead poisoning</p>	<p>No.: 169</p> <p><b>C</b></p> <p>This man has a modestly elevated serum calcium. His symptoms can all be explained with reference to his elevated calcium. The swollen knee may represent chondrocalcinosis. Chronic hyperparathyroidism can lead to calcification of the basal ganglia, producing an extra pyramidal syndrome. The hyperparathyroidism here is secondary to either ectopic parathyroid hormone production or another source of elevated calcium. This source needs to be identified. A thing to note is normal phosphate which can be found sometimes in cases of hyperparathyroidism. Also that phosphate levels are of less diagnostic value in diagnosis of hypercalcaemia as its level is governed by factors such as dietary intake and diurnal variations.</p>



No.: 170



These shoes belong to a patient with which of the following conditions?

Options

- A. Sciatic nerve palsy
- B. Common peroneal palsy
- C. Parkinson's disease
- D. Spastic paraparesis
- E. Cerebellar ataxia

No.: 170

D

There appear to be bilateral scuff marks on the front of these shoes, indicating that the feet were in plantar flexion. Although a common peroneal nerve palsy produces foot drop, it would be unlikely to be bilateral, and it is generally compensated for with a high stepping gait.



No.: 171



This man developed this lesion in his 20s. His father has a similar disorder. Which of the following is not associated with this condition :

Options

- A. Cerebral atrophy
- B. Glaucoma
- C. Reduced IQ
- D. Intracranial calcification
- E. Good response to antiepileptics

No.: 171

E

The autosomal dominant (in 30% of cases) inheritance and onset in later life means that this condition is tuberose sclerosis rather than Sturge-Weber. Tuberose sclerosis may manifest with facial angiofibroma. Ungual fibromata (at the nail beds) and shagreen patches (leathery, on the torso) may also be present .

Cerebral hemispheres are typically affected with multiple hamartomas or tubers producing calcification, epilepsy, retardation and atrophy. Response to anti-epileptic medications is typically poor. Fits occur in around 80% .

Hamartoma can also occur in most other organs, including the heart, lungs and kidneys.

No.: 172

A 2-year-old boy is referred to the ophthalmology clinic with progressive visual disturbance. He has recently began to display abnormal posturing and protracted contractures of limb and neck muscles. His GP has performed fundoscopy and remarked that the appearances are "very abnormal". On the basis of this information, which of the following is the least likely diagnosis :

Options

- A. Neuronal Ceroid Lipofucinosi
- B. Leber's hereditary Optic Atrophy
- C. Homocystinuria
- D. Spinocerebellar atrophy type 3
- E. GM2 gangliosidosis

No.: 172

D

This boy demonstrates dystonic posturing, in association with retinal abnormalities. The causes of secondary dystonia with ocular abnormalities are :

- Hallervorden-Spatz syndrome
- Mitochondrial disorders (including Leber's)
- Neuronal ceroid lipofucinosi
- Homocystinuria
- GM2 gangliosidosis

SCA3 produces dystonia in association with ataxia and neuropathy



No.: 173

A 36-year-old man who is known to be HIV positive for a number of years is brought to see you with a 5 month history of "slowing". His partner feels that he has become increasingly withdrawn and is reluctant to go out of the flat where he lives. His memory has become increasingly affected, and he often forgets to take the retroviral treatment that he has been on for a number of years .

On examination, he is slim and very withdrawn. His motor movements are slow and his gait is ataxic. Otherwise, there are no abnormalities to detect. An MRI of his brain shows three large hyperintense lesions that do not enhance with gadolinium. What would you expect a biopsy of one of these lesions to show?

Options

- A. Demyelination, giant astrocytes and oligodendrocytic inclusion bodies
- B. Granulomata, schwann cell degeneration
- C. Neurofibrillary plaques and amyloid tangles
- D. Multinucleated giant cells
- E. Perivascular inflammation and neuronal inclusion bodies

No.: 173

A

This clinical picture would be consistent with progressive multifocal leucoencephalopathy. This is a chronic viral disease which is an aids defining illness. Multinucleated cells are seen in aids-related dementia, perivascular infiltrates with CMV and neurofibrillary tangles with alzheimer's disease. None of these illnesses would give the MRI picture described.



No.: 174

A 54-year-old diplomat presents to A & E with an acute left facial weakness. He has no history of any systemic illness, but has recently returned from a trip to the United States. On examination he also mild neck stiffness and a painful right wrist and knee. Investigations were as follows :

WCC 6 x 10<sup>9</sup>/l Hb 12 g/l  
 Plat 240 x 10<sup>9</sup>/l  
 Clotting normal ESR 23 Na 136 mmol/l K 3.8 mmol/l  
 Urea 7.2 mmol/l  
 Creatinine 99 umol/l  
 Calcium and LFTs normal  
 CXR: Normal  
 CT head: Normal  
 CSF: Protein 1.2g  
 WCC 78 (98% lymphocytes)  
 No organisms

What is the most likely diagnosis :

Options

- A. HIV associated neuropathy
- B. Sarcoidosis
- C. Behcet's disease
- D. Lyme disease
- E. Tuberculous meningitis

No.: 174

D

All of the stems given are possible causes of a facial palsy. The high protein and lymphocytosis of the CSF imply an acute or sub acute infective process. The fact that the patient has recently been to America and has a unilateral facial palsy makes Lyme disease the most likely diagnosis .

Sarcoidosis usually produces bilateral facial palsy, while TB meningitis would result in significantly more systemic upset.





No.: 175



This patient's vision is deteriorating. What is the diagnosis?

Options

- A. MS
- B. Sarcoid
- C. Glaucoma
- D. Ischaemic optic neuropathy
- E. Proliferative retinopathy

No.: 175

C

All of the stems have the potential to cause progressive visual loss. The picture shown is that of an optic disc demonstrating cupping as indicated by its well defined border. This contrasts with papilloedema where optic disc border definition is lost. Cupping is caused by an increase in intra-ocular pressure, therefore the correct answer is glaucoma .

Disc pallor (as seen in MS and ischaemia) is not apparent. There are no retinal signs of proliferation of blood vessels.



No.: 176



What is the diagnosis?

Options

- A. Tuberose sclerosis
- B. Neurofibromatosis
- C. Subungual melanoma
- D. Onycholysis
- E. Clubbing

No.: 176

A

These are the appearances of the ungal fibromata that are found in up to 40% cases of tuberose sclerosis.





No.: 177

A 57-year-old lorry driver presents to casualty with sudden onset of headache and diplopia. He has a history of hypertension and maturity onset diabetes. He is on ramipril 1.25 mg od and gliclazide 80mg od. He smokes 20 cigarettes per day and drinks 15 units alcohol per week .

On examination he is alert and orientated. Temperature is 36.9 degrees C. There is no neck stiffness. Pulse is 100 regular, blood pressure 170/100 mmHg. Cardiovascular examination is normal except for a sustained displaced apex and loud first heart sound. Respiratory and abdominal systems are normal. Neurological examination reveals background retinopathy, a dilated unreactive right pupil, right-sided complete ptosis and a depressed and abducted right eye .

Investigations :

Hb 15 g/dl

WCC 7 x 10<sup>9</sup>/l

Platelets 236 x 10<sup>9</sup>/l

Clotting normal

ESR 17 mm

CRP 5 mg/l

Na 136 mmol/l

K 3.9 mmol/l

Ur 10 mmol/l

Cr 130 umol/l

Ca<sup>2+</sup> 2.25 mmol/l

LFTs normal

Glucose 9.5 mmol/l

HbA1c 8.5%

CT brain: normal

CSF: Opening pressure 16 cm CSF

No cells

Glucose 7 mmol/l

Protein 0.3 g/l

What is your next management step?

Options

A. Start metformin

B. Start atenolol

C. Start insulin

D. Start aspirin

E. Cerebral angiography

No.: 177

**E**  
Ptosis, pupillary dilation and an abducted depressed eye imply that a third nerve palsy has occurred. This has presented acutely, with no other cranial nerve abnormalities readily detectable. Therefore, the concern is that this represents a vascular aetiology. A posterior communicating aneurysm is a likely cause and angiography is required to exclude this.

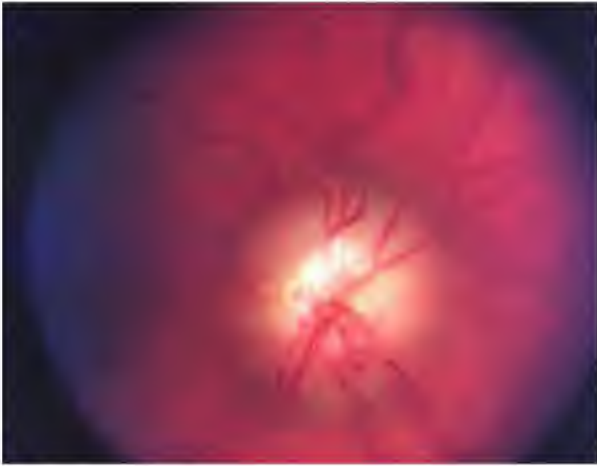




<p>No.: 178</p> <p>A 44-year-old Dog Track Announcer has noticed that when she bends her neck in flexion to speak into her microphone, she experiences electric shock-type sensations radiating down her back. She has also noted some unsteadiness in her walking. Which of the following is least likely, given her symptoms :</p> <p>Options</p> <p>A. Multiple sclerosis B. Chiari Malformation type I C. Cervical disc herniation D. Motor neurone disease E. Cervical stenosis</p>	<p>No.: 178</p> <p><b>D</b></p> <p>This symptom, described, is Lhermitte's phenomenon, which is the production of unpleasant shock like sensation when the neck is in full flexion. It is seen in conditions that impinge on the cervical spine, such as chiari malformations (I), cervical stenosis and disc herniation. Multiple sclerosis may also produce this symptom, although it would be an unusual presenting feature. Motor neuron disease almost never presents with sensory symptoms.</p>
<p>No.: 179</p> <p>A 47-year-old man acutely developed double vision. He had no major past medical history and had been well until the day before. Systemic examination was normal and the patient was afebrile. Pupils were both poorly reactive, and there was bilateral ptosis with impaired abduction of both eyes. There was decreased palatal movement and the patient found it difficult to cough. There was mild weakness of neck flexion and extension. Limb examination absent ankle and knee reflexes. Which of these investigations is most likely to provide the diagnosis?</p> <p>Options</p> <p>A. Tensilon test B. Acetyl choline receptor antibodies C. Anti Ganglioside GQ1b antibodies D. Nerve conduction studies E. CSF microscopy and culture</p>	<p>No.: 179</p> <p><b>C</b></p> <p>This patient has features of the Miller-Fisher syndrome (variant of Guillain-Barre): Ataxia, ophthalmoplegia, areflexia without significant limb weakness. Nearly all pts have Abs to GQ1b ganglioside</p> <p>Guillain-Barre syndrome consists of progressive limb weakness, areflexia, less than 4 wks progression, mild sensory involvement, prior infxn in 2/3 pts. CSF: raised protein. Possible respiratory failure.</p>



No.: 180



This patient has acne. What is the most likely diagnosis?

Options

- A. Intracranial hypertension
- B. Glaucoma
- C. Glioma
- D. Hydrocephalus
- E. Central retinal vein thrombosis

No.: 180

A

This slide shows the appearance of papilloedema .

The causes include :

- Intra-cranial space occupying lesion
- Malignant hypertension
- Benign intracranial hypertension
- Elevated venous pressure (thrombosis of retinal vein or cavernous sinus)
- Grave's Ophthalmopathy
- Paget's Disease
- Anaemia

Benign Intracranial Hypertension tends to occur in younger women. It is associated with long term use of oral contraceptives, steroids or tetracycline. Tetracycline is sometimes administered in the treatment of acne.



No.: 181



What is the diagnosis?

Options

- A. Rabies
- B. Drug-induced dystonia
- C. Bruxism
- D. Tetanus
- E. Parkinsonism

No.: 181

D

The pattern of muscles affected in tetanic contraction generally spreads from the jaw. The typical facial appearance is described as risus sardonicus, which is indicated here .

Diagnosis is predominantly from the history, although EMG studies demonstrate loss of the silent period that occurs shortly after reflex contraction.





<p>No.: 182</p> <p>A 54-year-old accountant presents to casualty at 2 a.m. with a 3 day history of being woken up in the early morning with severe headache which lasts 1-2 hours. The headache is <b>◈boring◈</b> in character, involves the eye and frontal region on the left side, and is associated with eye-watering. He says it is the worst pain that he has ever had, and he is unable to sleep until it subsides. He denies any visual symptoms .</p> <p>On examination he appears in pain. There is no neck stiffness. The left conjunctiva is injected and there is a left Horner <b>◈s</b> syndrome .</p> <p>What prophylactic treatment would you institute :</p> <p>Options</p> <p>A. Amitriptyline B. Verapamil C. Sumatriptan D. Methysergide E. Aspirin</p>	<p>No.: 182</p> <p><b>B</b></p> <p>This is cluster headache .</p> <p>The treatment strategies can be divided into the acute and the prophylactic .</p> <p><b>Acute treatment :</b></p> <ul style="list-style-type: none"> <li>• High flow oxygen</li> <li>• Sumatriptan injections / nasal spray</li> <li>• Ergotamine (not if also taking sumatriptan)</li> </ul> <p><b>Prophylactic :</b></p> <ul style="list-style-type: none"> <li>• Verapamil</li> <li>• Methysergide (not for prolonged use because of risk of retroperitoneal fibrosis - very important that patients are warned)</li> <li>• Sodium Valproate</li> <li>• Lithium (Need to monitor levels)</li> </ul> <p>Because of the safety and tolerability issues, verapamil would be the first line prophylactic</p>
<p>No.: 183</p> <p>A 33-year-old woman has developed abnormal repetitive movements of her upper limbs in association with lip smacking and abnormal posturing. Neurological examination reveals absent tendon reflexes and some distal weakness of the limbs. Routine bloods are requested, and her blood film is reported as showing thorny erythrocytes. Which of the following is the most likely diagnosis :</p> <p>Options</p> <p>A. Parkinson's disease B. Tourette's syndrome C. Neuroacanthocytosis D. Huntington's Disease E. Shy-Drager Syndrome</p>	<p>No.: 183</p> <p><b>C</b></p> <p>Neuroacanthocytosis is a relatively rare condition. It comes on in the third decade and is, sometimes, familial. There is usually an insidious onset of chorea, tics or dystonia in association with peripheral neuropathic features .</p> <p>The diagnosis is made by finding acanthocytes on a blood film. These Parkinson's, Tourette's and Huntington's would not involve the peripheral nervous system. Shy-Drager does not present with chorea.</p>

No.: 184

A 54-year-old man presents with headaches and confusion. He says that he has difficulty with his vision and tingling in his fingers and toes. He was discharged following a kidney transplant 3 weeks ago. On examination he is hypertensive. His pupillary responses are normal, but he finds it difficult to read. He has no limb weakness, his reflexes are all normal and he has bilateral tremor. Which is the most likely diagnosis :

Options

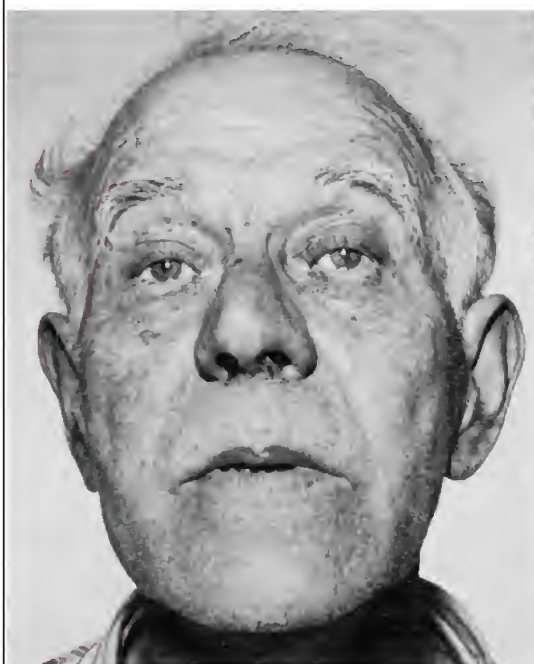
- A. Steroid toxicity
- B. Uraemia
- C. Cerebral Lymphoma
- D. Cyclosporin Toxicity
- E. Tuberculous Meningitis

No.: 184

D

The combination of symmetrical posterior white matter changes with headaches and confusion implies a syndrome similar to that seen in hypertensive encephalopathy. This may be produced by cyclosporin due, it is thought, to changes in the blood-brain barrier. The patient is likely to have recently commenced cyclosporin following the renal transplant. The clinical pattern does not fit with any of the other stems.

No.: 185



This 75-year-old man has cognitive impairment. Which of the following investigations will confirm the diagnosis?

Options

- A. CT head
- B. B12 levels
- C. VDRL
- D. Visual field testing
- E. Intracranial pressure monitoring

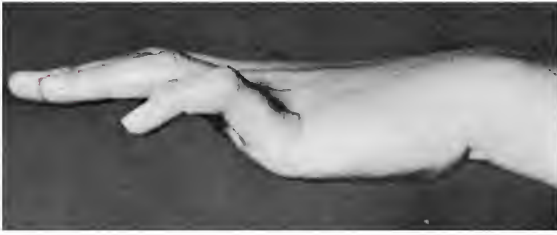
No.: 185

D





No.: 186



This 30-year-old woman developed this deformity gradually. What is the diagnosis?

Options

- A. Ulnar nerve palsy
- B. Median nerve palsy
- C. Radial nerve palsy
- D. Dupuytren's contracture
- E. Trigger finger

No.: 186

A

Hyperextension at the metacarpophalangeal joint with flexion of the interphalangeal joints of the fourth and fifth fingers are seen in ulnar nerve lesions above the wrist .

A median nerve lesion would affect the thenar eminence .  
Radial nerve lesions cause wrist drop.





No.: 187

A 35-year-old man is admitted to casualty after being found lying in the street. He is unable to give a coherent history and nothing is known about his background other than that he has a history of vagrancy and alcohol excess.

On examination he looks ill-kept. He is afebrile. General examination is unremarkable. His GCS is 12/15. There is no neck stiffness. The pupillary responses are sluggish. Fundoscopy shows bilateral papilloedema. There are no other abnormal neurological signs.

Investigations :

Hb 14 g/l ,  
 WCC  $11 \times 10^9/l$  ,  
 Platelets  $122 \times 10^9/l$  ,  
 Clotting normal ,  
 Glucose 7.7 mmol/l ,  
 Na 132 mmol/l ,  
 K 3.8 mmol/l ,  
 Bicarbonate 16 mmol/l ,  
 Chloride 93 mmol/l ,  
 Urea 4 mmol/l ,  
 Creat 110  $\mu$ mol/l ,  
 Prot 68 g/l ,  
 Albumin 33 g/l ,  
 Bili 12  $\mu$ mol/l ,  
 ALP 111 IU/l ,  
 AST 57 IU/l ,  
 ALT 43 IU/l ,  
 GGT 87 IU/l ,  
 Lactate 4.2 mmol/l ,  
 Osmolarity 311 mmol/l ,

ABG: pH 7.28  
 pCO<sub>2</sub> 3.5 kPa (24.5 mm of Hg)  
 pO<sub>2</sub> 11 kPa (85 mm of Hg)  
 bicarbonate 16 mmol/l  
 base excess  $\diamond 12$

What is the next management step :

Options

- A. CT head followed by lumbar puncture
- B. Haemodialysis
- C. Intravenous ethanol
- D. Intravenous aciclovir
- E. Intravenous thiamine

No.: 187

This man has an altered GCS, papilloedema and a significant negative base excess (acidosis). His sugar is normal, making diabetic ketoacidosis much less likely. In view of his history, the diagnosis is almost certainly methanol poisoning. Papilloedema may be seen in methanol or ethylene glycol poisoning.

The standard treatment, in the first instance is intravenous ethanol. Haemodialysis is reserved for patients with renal failure, visual impairment or based on serum methanol levels.

Other conditions are more common in alcohol users, and should be actively excluded, sub dural haematoma and wernicke's are two important conditions which may co-exist in this case.





<p>No.: 188</p> <p>A 32-year-old woman comes to the clinic because of unusual movements. For the past two weeks her partner has noticed that her walking has become increasingly "jerky" and she sometimes moves her arms in a semi-purposeful twitching way. She has had some pain in her hands and feet and has felt confused. Her father left when she was young but her mother is still alive and well at 57. She has been treated, in the past, for depression. She had a "cold" 5 weeks prior to this episode .</p> <p>On examination, she exhibits sporadic involuntary movements of her limbs and face. Neurological examination is otherwise normal. Formal cognitive testing is normal. Which test is most likely to provide a diagnosis :</p> <p>Options</p> <p>A. Sequencing chromosome 4p B. ASO titres C. MRI brain D. Drug screen E. A review of her psychiatric notes</p>	<p>No.: 188</p> <p><b>B</b></p> <p>The short history, joint pains and association of an upper respiratory tract infection would make rheumatic fever the most likely cause for her chorea. This is called Sydenhams chorea ,it is characterised by features like darting motility of the tongue,milk-maid grasp and spooning sign. This is a complication of group A streptococcal infection, with antibodies being formed. A rash, arthritis or heart valve problems may be associated. Diagnosis is by anti-steptococcal antibody titres .</p> <p>The other two main differentials would be Huntington's (usually more chronic) or tardive dyskinesia (often restricted to the face, occurs with chronic use of antipsychotics).</p>
<p>No.: 189</p> <p>A 22-year-old woman presents with a 6 month history of jerking movements. She is originally from Mexico and has no major past medical history. There is no family history of neurological disease. On examination she appears listless and withdrawn. Throughout the examination she demonstrates frequent repetitive movements consisting of turning her head and abducting both arms. When she tries to walk she has vigorous back arching and requires support to stop her from falling. EEG exhibited periodic bursts of high voltage stretches (burst suppression). CSF showed multiple oligoclonal bands with a markedly elevated IgG. CT scan showed cerebral oedema and diffuse hypodense signal in white matter bilaterally. What is the most likely diagnosis?</p> <p>Options</p> <p>A. Progressive Multifocal leukoencephalitis B. Rabies Encephalitis C. Subacute Sclerosing Panencephalitis D. HIV Encephalomyelitis E. Neurocysticercosis</p>	<p>No.: 189</p> <p><b>C</b></p> <p>Subacute sclerosing pan encephalitis is a late complication of measles. It should be considered, therefore, in people from those countries where vaccination is not carried out. Clinical features include ataxia, myoclonus, seizures and visual disturbance. The brief bursts seen on EEG are highly suggestive of the diagnosis .</p> <p>Rabies encephalitis is almost uniformly fatal within a short space of time .</p> <p>PML occurs in older individuals in the context of another serious illness .</p> <p>HIV encephalomyelitis is a possible diagnosis, here, but it is usually more chronic with dementia as the predominant feature .</p> <p>Neurocysticercosis involves multiple cysts within the brain and usually presents with seizures.</p>

No.: 190



This 27-year-old woman has progressive left sided weakness. What is the diagnosis :

Options

- A. Cerebral palsy
- B. Neurofibromatosis
- C. Scleroderma
- D. MS
- E. Hemiatrophy

No.: 190

E





No.: 191



This lady has been told a joke. What might be the underlying condition?

Options

- A. Bell's palsy
- B. Sarcoid
- C. Cerebrovascular disease
- D. Ramsay-Hunt Syndrome
- E. Sjogren's syndrome

No.: 191

C

Unilateral facial weakness may be upper or lower motor neuron in origin. Lower motor neuron lesions will produce a facial weakness that affects the whole face, whereas upper motor neuron lesions tend to spare the forehead. This is due to the bilateral innervation of this region. Involuntary facial movements are, sometimes, preserved in upper motor facial lesions. All of the other stems refer to lower motor neuron causes of facial weakness .

Upper motor neuron causes include: cerebrovascular disease, demyelination and space-occupying lesions.





No.: 192

A 56-year-old woman is admitted with a 2 month history of lassitude, neck pain, weakness in the upper limbs and gait disturbance. She describes occasional episodes of electrical sensation shooting down her spine on flexing her neck. She has a long history of lower back pain, primary generalised osteoarthritis, and vitiligo. She takes voltarol regularly. She neither smokes nor drinks. She is of Pakistani origin and has been in this country for the past 6 years. There is no history of recent foreign travel .

On examination she is afebrile. General examinations is unremarkable except for vitiligo. Examination of the cranial nerves is normal. There is no wasting of the limbs but there are a few fasciculations in brachioradialis and biceps on the right. Tone is mildly increased. Apart from mild weakness of elbow, wrist and finger flexion and extension, more marked on the right, power is normal. There is inversion of the right supinator reflex, and triceps, knee and ankle jerks are brisk bilaterally. Right plantar is extensor, the left flexor. Sensation and coordination are within normal limits. Gait is mildly spastic .

Investigations :

Hb 11.3 g/l  
WCC 7 x 10<sup>9</sup>/l  
Plat 130 x 10<sup>9</sup>/l  
Clotting normal  
ESR 67 mm  
CRP 17 mg/l  
Na 137 mmol/l  
K 4.2 mmol/l  
Urea 5.7 mmol/l  
Creatinine 87 umol/l  
Protein 83 g/l  
Albumin 33 g/l  
Ca 2.23 mmol/l  
Phosphate 1.2 mmol/l  
LFTs normal

CXR: normal

X ray cervical spine: Extensive osteophytes  
Normal alignment

At what level is the lesion:

Options

- A. Brainstem
- B. C3/4
- C. C4/5
- D. C5/6
- E. C6/7

No.: 192

**D**  
Inversion of the supinator jerk refers to brisk finger responses and little else on attempting to elicit the supinator jerk. It effectively localises the lesion to C5/6. The pyramidal tract damage at this level produces lower motor neuron signs in that myotome with upper motor neuron signs below - hence the brisk triceps jerk . Sphinter disturbance is unusual, but pain in the neck is common.





<p>No.: 193</p> <p>A 22-year-old trainee policeman has been increasingly confused over a three day period. He has a generalised headache. He has become disorientated in time and place, with speech disturbance .</p> <p>He has a temperature of 38C, pulse 110 bpm. There is mild neck stiffness but no focal neurological abnormalities. Systemic examination is normal. A lumbar puncture is performed, it shows a protein of 2g/l, glucose 4 (serum=6), WCC 4 (lymphocytes), RCC 2 .</p> <p>Which of the following would be an unexpected investigation result :</p> <p>Options</p> <p>A. Bilateral temporal hypodensity on MRI scanning B. Negative CSF culture C. Abnormal EEG D. Positive gram stain E. Positive viral PCR</p>	<p>No.: 193</p> <p><b>D</b></p> <p>The clinical picture of confusion associated with fever is suggestive of a central nervous system infection. The main differential is between a bacterial, viral or fungal infection. Alternatively, there are a number of rarer aseptic causes of meningitis .</p> <p>In this case, however, there are abnormalities of the lumbar puncture. The lack of neutrophils and normal glucose would make a bacterial meningitis very unlikely. In view of the history and the elevated protein in the cerebrospinal fluid, the most likely diagnosis would be a herpes simplex encephalitis. There is no history given of immunocompromise, that would make you think of TB or brucellosis.</p>
<p>No.: 194</p> <p>A 53-year-old heavy smoker and drinker has a 5 month history of proximal weakness, weight loss, dry mouth and constipation. He has no sensory symptoms and is cognitively intact. On examination there is indeed proximal weakness with reduced reflexes throughout. The weakness is fatigable, but there is a temporary increase in power after 3 or 4 contractions. What is the likely diagnosis?</p> <p>Options</p> <p>A. Inclusion Body Myositis B. Stiff Man Syndrome C. Myasthenia Gravis D. Lambert Eaton syndrome E. Mccardle's syndrome</p>	<p>No.: 194</p> <p><b>D</b></p> <p>Weakness of the proximal musculature that improves with repetitive exercise is strongly suggestive of Lambert Eaton syndrome. This is a disorder involving antibodies to calcium gated channels in the muscle membrane. The eye muscles are rarely affected, although autonomic involvement does occur. It is a paraneoplastic syndrome in 50% of sufferers, the most common association being with small cell carcinoma of the lung.</p>

No.: 195



What is the diagnosis?

Options

- A. Cerebrotendinous xanthomatosis
- B. Leprosy
- C. Jugular foramen syndrome
- D. Internal jugular vein thrombosis
- E. Hereditary Motor Sensory Neuropathy

No.: 195

B

This picture shows thickened nerves in the neck. Leprosy of the tuberculoid variety begins with a small hypopigmented patch of sensory loss which may be followed by palpable enlargement of superficial sensory nerves. The posterior auricular and facial nerves may be affected.

HMSN type 3 may cause nerve hypertrophy, but this would be more distal.

No.: 196



Which nerve is involved here?

Options

- A. Long thoracic
- B. Dorsal scapular
- C. Suprascapular
- D. Lateral pectoral nerve
- E. Lower subscapular nerve

No.: 196

A

The long thoracic nerve (C6,7,8) innervates serratus anterior which is responsible for forward and lateral movement of the scapula. Winging may occur due to damage of this nerve, it is also seen in some of the muscular dystrophies.





No.: 197

A 56-year-old woman is admitted with a 2 month history of lassitude, neck pain, weakness in the upper limbs and gait disturbance. She describes occasional episodes of electrical sensation shooting down her spine on flexing her neck. She has a long history of lower back pain, primary generalised osteoarthritis, and vitiligo. She takes voltamol regularly. She neither smokes nor drinks. She is of Asian origin and has been in the UK for the past 6 years. There is no history of recent foreign travel.

On examination she is afebrile. General examinations is unremarkable except for vitiligo. Examination of the cranial nerves is normal. There is no wasting of the limbs but there are a few fasciculations in brachioradialis and biceps on the right. Tone is mildly increased. Apart from mild weakness of elbow, wrist and finger flexion and extension, more marked on the right, power is normal. There is inversion of the right supinator reflex, and triceps, knee and ankle jerks are brisk bilaterally. Right plantar is extensor, the left flexor. Sensation and coordination are within normal limits. Gait is mildly spastic.

Investigations :

Hb 11.3 g/l  
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Albumin 33 g/l  
Ca 2.23 mmol/l  
Phosphate 1.2 mmol/l  
LFTs normal

CXR: normal

X ray cervical spine: Extensive osteophytes  
Normal alignment

What is the diagnosis :

Options

- A. Degenerative cervical spondyloarthropathy
- B. Syringomyelia
- C. Polymyalgia rheumatica
- D. Multiple myeloma
- E. Motor neurone disease

No.: 197

A

The inverted supinator jerk localises the lesion to C 5/6. Cervical spondylosis is associated with pain in the neck that may radiate down the arms or back. Sphincter disturbance is uncommon.

Multiple myeloma is associated with a higher ESR and would have Syringomyelia would have sensory involvement.

Motor Neuron disease is a possibility, although it would be very coincidental to localise this well anatomically to the c spine lesion.





<p>No.: 198</p> <p>A 44-year-old man from Barbados comes to see you with progressive difficulty in walking and pain in the legs. He was previously fit and well, drinking 12 units of alcohol a week and smoking 1/4 of an ounce of cannabis resin per week. He has previously had multiple sexual partners, until his marriage earlier this year .</p> <p>On examination, his cranial nerves and pupils are normal. The upper limbs are also normal. There are absent knee and ankle reflexes, with loss of proprioception and vibration sensation in the feet. Plantars are equivocal .</p> <p>Initial full blood count, liver and renal function, glucose and clotting studies are normal .</p> <p>Which treatment is most likely to be appropriate :</p> <p>Options</p> <p>A. Vitamin B12 injections B. IV penicillin C. IV methylprednisolone D. IV immunoglobulin E. IV Thiamine</p>	<p>No.: 198</p> <p><b>B</b></p> <p>The loss of posterior column sensation in the legs, alone, coupled with absent reflexes, is suggestive of B12 deficiency, tabes dorsalis, Friedreich's Ataxia or a caudal lesion .</p> <p>The previous history of multiple partners and the normal full blood count (no macrocytosis) and age of onset would make tabes dorsalis the most likely diagnosis. This is relatively rare now, although still seen. It is due to reactivation of latent treponemes in the dorsal root ganglia with resulting posterior column demyelination. Diagnosis is confirmed with cerebrospinal fluid examination for treponemal antigens (serum VDRL is not sufficient to make the diagnosis, it is useful in determining outcome of penicillin therapy) .</p> <p>Treatment is with IV penicillin.</p>
<p>No.: 199</p> <p>A 40-year-old male presents with clumsiness of the hands and multiple falls. He is an only child whose mother died of a heart attack at age 40. He has had increasing difficulty buttoning his shirt and tying his shoelaces. Examination reveals male pattern baldness, early cataract development and testicular atrophy. An EMG will probably show :</p> <p>Options</p> <p>A. Repetitive discharges with minor stimulation B. Polyphasic giant action potentials C. Fasciculations D. Fibrillations E. Positive waves</p>	<p>No.: 199</p> <p><b>A</b></p> <p>This man has the features of myotonic dystrophy, a genetic disease which demonstrates anticipation .</p> <p>EMG of this condition may demonstrate a so called dive bomber pattern that waxes and wanes .</p> <p>Polyphasic giant action potentials are found in proximally denervating conditions .</p> <p>Fasciculations may be associated with motor neuron disease .</p> <p>Fibrillation is the spontaneous contraction of a single fibre, it is associated with denervation.</p>

No.: 200



Which of the following conditions may explain this appearance :

Options

- A. Hypopituitarism
- B. Hypogonadism
- C. Thyroid carcinoma
- D. Myotonic dystrophy
- E. Systemic sclerosis

No.: 200

D

This lady has an expressionless face with a unilateral ptosis. The only reasonable cause from the given stems would be myotonic dystrophy. Temporalis wasting is also evident, sternocleidomastoid less so. It is not clear whether she is wearing a wig, this is something to look out for in women with the disease. Other features may include cataracts, the stigmata of diabetes and (occasionally) external ophthalmoplegia.

No.: 201



What is the diagnosis :

Options

- A. Cluster headache
- B. Trigeminal neuralgia
- C. Raeder ♦s syndrome
- D. Hemifacial spasm
- E. Acute dystonia

No.: 201

D

This lady demonstrates hemifacial spasm with facial weakness affecting the same side (left) - note the incomplete eye opening. This is sometimes caused by irritation of the seventh nerve at some point during it's course .

Dystonia would tend to involve the neck, with contraction of the ipsilateral sternocleidomastoid resulting in neck twisting .

Trigeminal neuralgia involves pain over the distribution of the trigeminal nerve, there may be facial grimacing. Cluster headache can also involve the trigeminal ganglion.







No.: 202

A 16-year-old adopted girl complains of episodes of limb weakness lasting several hours precipitated by emotional upset. Speech, swallowing, breathing and sphincters are unaffected. She has noticed that a large meal can also sometimes precipitate an attack. She is normally fit and well and denies any illicit drug use, smoking or alcohol.

Examination during an attack shows global weakness and no other abnormalities.

What is the management :

Options

- A. Psychiatric referral
- B. Serum electrolytes during an attack
- C. Sleep studies
- D. Muscle biopsy
- E. Thyroid function tests

No.: 202

This history of episodic weakness with preserved consciousness that is precipitated by large food intake is strongly suggestive of familial hypokalaemic periodic paralysis. This is an autosomal dominant disease linked to abnormalities in the muscle calcium channels that produces a shift in intracellular potassium. Therefore, electrolytes during an attack would be the most appropriate test.

No.: 203

A 5-year-old boy is referred because of increasing clumsiness over the past month. He had a normal birth, and has a younger sister who is well. His parents are both well. He did not have his vaccinations, because of parental concerns. At 15 months, he had measles, but this resolved, without complication.

On examination, he is withdrawn, and does not speak. His arms and legs sporadically jerk. There is normal power in all four limbs, reflexes are brisk and gait is normal.

What is the prognosis of his condition?

Options

- A. Death within 6 months
- B. Full recovery
- C. Death in teens with motor disability
- D. Normal life expectancy with motor disability
- E. Death within 1-3 years

No.: 203

The presence of myoclonic jerks and withdrawal in a child 4 or more years following measles infection is strongly suggestive of a diagnosis of subacute sclerosing panencephalitis. This is due to accumulation of viral proteins in neurons. It has three stages. Initially, there are cognitive and behavioural problems. The second stage involves increasing spasticity and weakness. Finally, autonomic dysfunction and coma. Treatment is supportive.

No.: 204

A 45-year-old male complains of slowly progressive weakness involving his hands. Examination shows muscle atrophy, weakness, wasting and fasciculations in his upper limbs. Lower limb examination shows hypertonia, clonus, brisk deep tendon reflexes and upgoing plantars. MRI of his spinal cord is normal. Which of the following is associated with the shortest life expectancy in this disease :

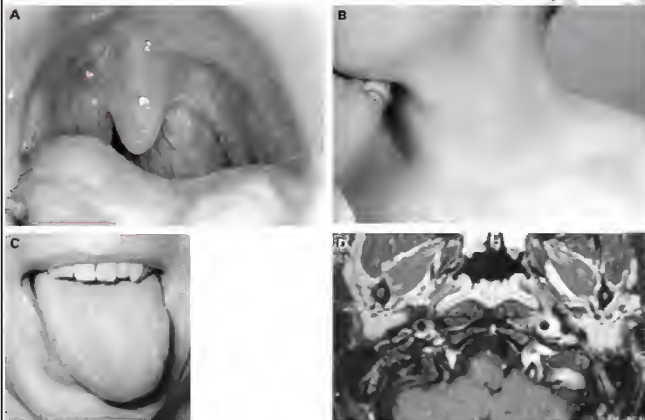
Options

- A. Atrophy of biceps
- B. Fasciculations in triceps
- C. Atrophy of triceps
- D. Upgoing plantar reflexes
- E. Tongue fasciculations

No.: 204

This combination of upper and lower motor neuron dysfunction is strongly suggestive of motor neuron disease. This has a generally poor prognosis, with death usually occurring within 5 years of onset, as a result of respiratory muscle involvement. Tongue fasciculations imply the onset of a bulbar palsy which has a worse prognosis.

No.: 205



Where is the lesion?

Options

- A. Brainstem
- B. Pons
- C. Jugular foramen
- D. Foramen magnum
- E. Cerebellopontine angle

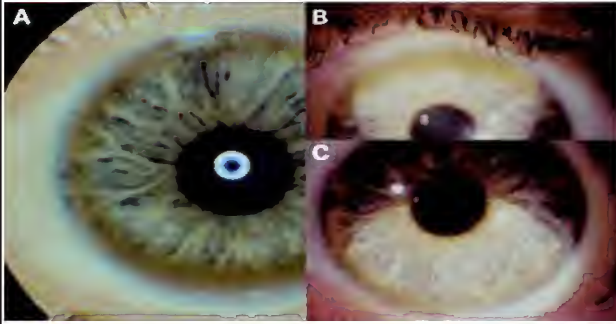
No.: 205

C

This patient has an affected ninth / tenth (palate), eleventh (sternocleidomastoid and trapezius) and twelfth cranial nerve. This combination is seen in the jugular foramen syndrome (Vernet). Causes include carcinoma of the pharynx, fracture of the base of the skull, basal meningitis or thrombosis of the jugular vein .

The brainstem and pons involve lower cranial nerves. Cerebello pontine angle lesions would affect the seventh and eighth nerves.

No.: 206



Which of the following may not be present?

Options

- A. Drooling
- B. Raised reticulocyte count
- C. Cognitive impairment
- D. Renal tubular acidosis
- E. Reduced urinary copper excretion

No.: 206

E

This slide demonstrates Kayser-Fleischer rings suggesting Wilson's disease. This is a disorder of copper metabolism and storage that results increased urinary secretion of copper (and resulting renal tubular acidosis).

Drooling, tremor and slow saccadic eye movements are seen in the early illness.





No.: 207

A 56-year-old ex-smoker presents with a 3 month history of [his] legs getting in the way when walking. On direct questioning he admits to weight loss, dry mouth and impotence of recent onset. He has no past history of note and there is no history of inherited disease. He is an ex-smoker of 20 pack/years and drinks 20 units a week .

General examination is normal except for a diastolic postural drop of 15 mmHg. There is a hint of ptosis on the left, cranial nerves are otherwise normal. There is no wasting or fasciculation. Tone is normal. He has mild bilateral proximal leg weakness. Reflexes are dull but augmented by contraction of the relevant muscle. Plantar responses are flexor. There are no sensory signs .

Investigations :

WCC 6 x 10<sup>9</sup>/l  
Hb 15 g/l  
Plat 240 x 10<sup>9</sup>/l  
Clotting normal  
ESR 23  
Na 127 mmol/l  
K 3.8 mmol/l  
Urea 7.2 mmol/l  
Creatinine 99 umol/l  
Calcium and LFTs normal  
CXR normal

Which is the next management step :

Options

- A. Schirmer's test
- B. MRI spine
- C. Muscle biopsy
- D. Tensilon test
- E. Fluid restriction

No.: 207

E Clinically, this man has a mild proximal motor weakness which improves with repetition. In conjunction with his other history, he probably has Lambert-Eaton Myasthenic syndrome - a paraneoplastic manifestation of carcinoma of the lung. The low sodium would be explained by paraneoplastic SIADH - this would implicate small cell carcinoma of the lung as the most likely underlying pathology .

In the acute phase, his sodium requires elevation - fluid restriction should be implemented. CT chest and bronchoscopy to follow.





No.: 208

A 52-year-old welder develops a sudden onset right sided facial weakness in association with hearing loss and pain in the right ear .

On examination, there is a vesicular rash over the right ear. There is sensorineural hearing loss in the ear, with an obvious right sided lower motor neuron facial palsy . Which is the most likely causative agent :

Options

- A. Herpes simplex
- B. Borrelia burgdorferi
- C. Herpes zoster
- D. Poliovirus 1
- E. Treponema

No.: 208

C

The reactivation of herpes zoster virus in the seventh and eighth cranial nerve ganglia is known as Ramsay-Hunt syndrome. It is a form of shingles. Reactivation can occur spontaneously, but is often due to a precipitating factor, such as an upper respiratory tract infection or immune compromise .

Acyclovir reduces the duration of the rash and the likelihood of post-herpetic neuralgia. Some clinicians would also give steroids.

No.: 209



A 25-year-old woman presents with headaches and diplopia. What is the most likely cause of the abnormalities seen?

Options

- A. Horner's syndrome
- B. Third nerve palsy
- C. Myasthenia gravis
- D. Graves ophthalmopathy
- E. Facial nerve palsy

No.: 209

B

This patient has unilateral failure of elevation of the eye with an associated ptosis .

A Horner's syndrome or facial nerve palsy would not produce an ophthalmoplegia, although a ptosis would be seen. Myasthenia gravis and Grave's are usually bilateral. Graves may be associated with lid retraction.

No.: 210



This young man had a similar appearance in the other eye and is now blind. What is the diagnosis?

Options

- A. MS
- B. Sarcoidosis
- C. Leber's optic atrophy
- D. Optic neuroma
- E. Carbon monoxide poisoning

No.: 210

C

The fundus pictured shows tortuosity of the vessels and disc pallor. The fact that these changes are bilateral implies that Leber's is the most likely cause. This is a congenital mitochondrial disorder with over 80% of sufferers being men. Visual loss is progressive and typically occurs between 18 and 25.

No.: 211



Which of the following may commonly accompany this condition :

Options

- A. Meningitis
- B. Sensory ataxia
- C. Venous sinus thrombosis
- D. Peripheral neuropathy
- E. Ischaemic stroke

No.: 211

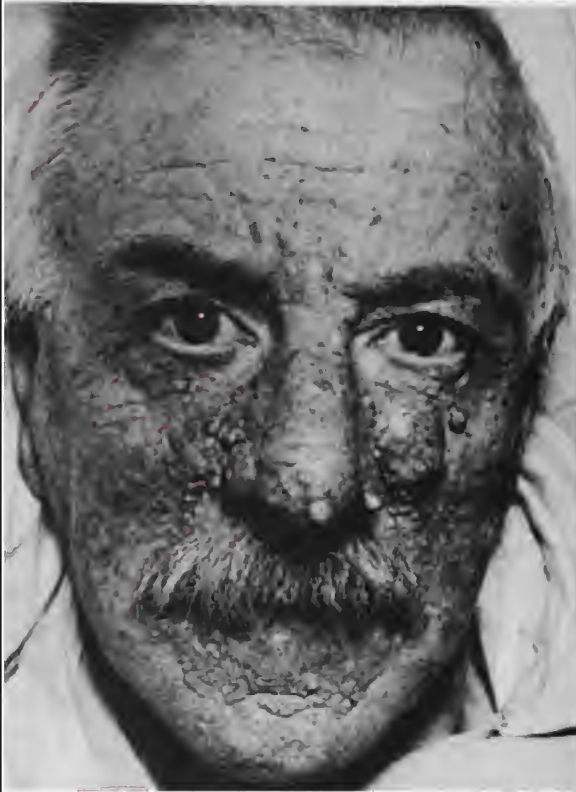
A

Secondary syphilis occurs 1 to 2 months following the primary chancre. It may involve a fever, malaise, uveitis, hepatitis or meningitis. The rash that accompanies it is papular and found on the soles of the feet and the palms.



<p>No.: 212</p> <p>A casualty officer asks your for your opinion on a 25-year-old man who has presented with a laceration to his knee after a fall from a bicycle. The patient had collapsed suddenly after seeing a former girl-friend in the street. He reports that he suddenly lost control of his body but not his mind. There were no involuntary movements. He volunteers that he has been having vivid dreams on waking and that he has recently been sacked from his job .</p> <p>Examination is normal .</p> <p>What investigation is most likely to clinch your diagnosis? :</p> <p>Options</p> <p>A. HLA typing B. U&amp;E C. Tensilon test D. EEG E. MRI brain</p>	<p>No.: 212</p> <p>A</p> <p>This patient presents with features suggestive of narcolepsy. The description of loss of control of the body in association with a strong emotional stimulus suggests cataplexy, which is an acute loss of muscle tone in association with emotional upset. It usually occurs after the onset of the episodes of daytime somnolence that are the hallmark of narcolepsy. The clinical tetrad of narcolepsy is - narcoleptic attacks, cataplexy, hypnagogic paralysis and hypnagogic hallucinations (as in this case). The first presentation between 15 and 35 year, is usually that of narcolepsy, although cataplexy and rarely, sleep paralysis, may occur initially . There is an almost universal association with HLA-DR2 and -Dqw1 antigens.</p>
<p>No.: 213</p> <p>A 28-year-old labourer is involved in a road traffic accident. He is brought in for a general check up, but feels well. He was shunted from behind by a farmer in a truck .</p> <p>On examination, there are some superficial abrasions to the face. His left pupil is significantly smaller than the right, and there is some drooping of the left eyelid. His partner confirms that these appearances were not present before the accident. There is also diminished sweating over the left forehead .</p> <p>What is the likely underlying pathology in this patient :</p> <p>Options</p> <p>A. Vertebral artery dissection B. Posterior communicating artery aneurysm C. Multiple sclerosis D. Intra-pontine haemorrhage E. Carotid artery dissection</p>	<p>No.: 213</p> <p>E</p> <p>This patient has developed a left sided Horner's syndrome in the context of probable neck trauma. The likelihood is that carotid dissection has taken place. This will affect the sympathetic chain, locally in the first instance. Obviously, appropriate imaging studies would be performed first. A vascular surgical referral may be appropriate.</p>

No.: 214



This man has epilepsy. What is the diagnosis?

Options

- A. Neurofibromatosis
- B. Tuberose sclerosis
- C. Tertiary syphilis
- D. Von Hippel-Lindau disease
- E. AIDS-related complex

No.: 214

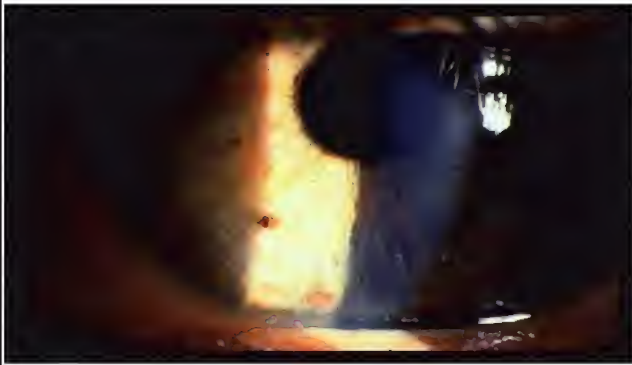
**B**

This man appears to have facial angiofibroma which, along with hypopigmented macules and shagreen patches (in the lumbar area) are found in tuberose sclerosis. Mental retardation and seizures occur from early childhood .

Although there is an incidence of epilepsy 20 times that of the general population in NF, the appearances are more consistent with tuberose sclerosis.



No.: 215



This young man has seizures and developmental delay. Ophthalmological assessment reveals the abnormality shown. What is the diagnosis :

Options

- A. Tuberose sclerosis
- B. Neurofibromatosis
- C. Wilson's disease
- D. Hereditary amyloidosis
- E. Congenital Horner's syndrome

No.: 215

B

The only stem that produces these nodules of the iris is neurofibromatosis type 1. They are called Lisch nodules, and can usually only be seen on slit-lamp examination (as here). Tuberose sclerosis may produce retinal abnormalities (as may neurofibromatosis). Wilson's disease typically produces Kayser-Fleischer ring, also visible on slit lamp.

Without seeing the whole eye (and indeed the contra-lateral eye) one cannot diagnose Horner's.

Other surface abnormalities in NF type 1 include :

- cafe au lait spots
- neurofibroma
- axillary freckling
- optic glioma

No.: 216



This lady goes on to develop a right facial nerve palsy. What is the diagnosis :

Options

- A. SLE
- B. Borreliosis
- C. Porphyria
- D. DM
- E. Endocarditis

No.: 216

B





<p>No.: 217</p> <p>You are asked to review a 20-year-old woman who has been admitted after a seizure. She had recently received in-patient chemotherapy for lymphoma. She has no previous history of seizures and no other past medical history of note. Apart from paraesthesia in the hands she is asymptomatic .</p> <p>Investigations :</p> <p>Na 133 K 3.4 Urea 8.8 Creatinine 89 Protein 74 Albumin 36 Ca 2.01 Phosphate 0.78 LFTs normal</p> <p>What is the next management step :</p> <p>Options</p> <p>A. CT head B. CSF examination after CT head C. MRI brain D. Calcium supplements E. None of the above</p>	<p>No.: 217</p> <p><b>B</b></p> <p>The concern with this patient is that she may have lymphoma affecting the central nervous system. Sometimes this is not readily picked up on scanning and repeated CSF cytology is required in order to make the diagnosis. Obviously, it is important where a space occupying lesion is considered to check for hydrocephalus prior to performing a lumbar puncture to avoid the risks associated with this. Without a history like this, you would not always perform a CT head following a first seizure episode.</p>
<p>No.: 218</p> <p>A 69-year-old develops acute dizziness. She had a "cold" the previous week, but felt that this had cleared up. She is unable to walk because of the dizziness which is constant and severe. There is tinnitus in her left ear, and some sensori-neural hearing loss, on examination. There is no nystagmus, and the rest of the examination is normal .</p> <p>What is the most likely diagnosis :</p> <p>Options</p> <p>A. Vestibular neuronitis B. Benign positional vertigo C. Left cerebello-pontine angle lesion D. Vestibular Schwannoma E. Acute labyrinthitis</p>	<p>No.: 218</p> <p><b>E</b></p> <p>The acute onset, constant course and history of preceeding viral infection make acute labyrinthitis the most likely cause. This is thought to be an acute, infective process affecting the middle ear. It is treatable with bed rest and anti-emetics .</p> <p>Vestibular neuronitis tends to run a more chronic relapsing course. A vestibular schwannoma (acoustic neuroma) is a cerebello-pontine angle lesion. These tend to be more chronic in presentation, and often involve other cranial nerves. Her vertigo is clearly not positional!</p>

No.: 219



What is the diagnosis?

Options

- A. Horner's syndrome
- B. Myotonic dystrophy
- C. Holmes-Adie syndrome
- D. Partial third nerve palsy
- E. Systemic sclerosis

No.: 219

B

This patient has myopathic facies (drooping mouth, lean face), ptosis and a unilateral cataract. These are fairly convincing features of myotonic dystrophy. Other features include frontal balding (male), testicular atrophy, cardiomyopathy and diabetes mellitus. Ocular abnormalities, including ptosis, may be unilateral.

No.: 220



This appeared suddenly in a 20-year-old woman. What is the diagnosis?

Options

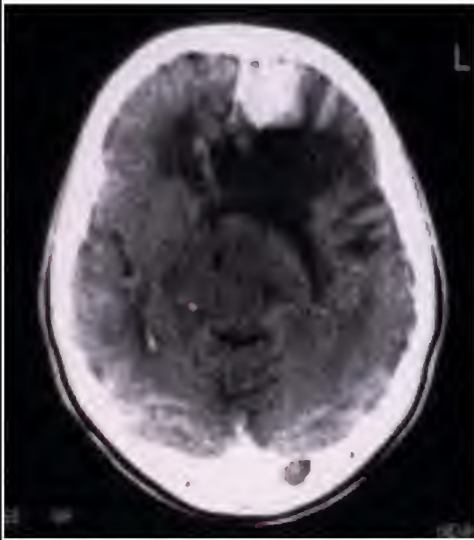
- A. Ulnar nerve palsy
- B. Median nerve palsy
- C. Torn extensor tendons
- D. Conversion disorder
- E. Tetany

No.: 220

A

Ulnar nerve palsy would affect the small muscles of the hand, median nerve palsy would produce thenar weakness.

No.: 221



A 45-year-old woman is admitted with worsening headaches and anosmia. She has papilloedema, multiple skin neuromas, fibromas and cafe au lait spots. What is the diagnosis demonstrated by the contrast enhanced CT scan :

Options

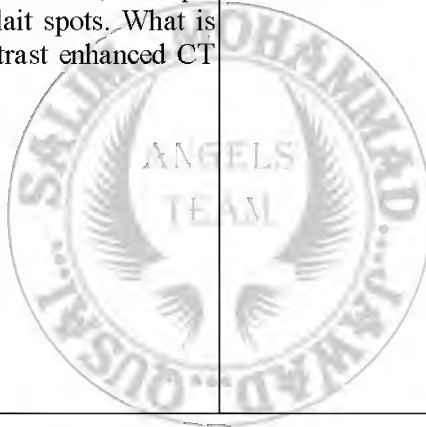
- A. Astrocytoma
- B. Frontal intracerebral haemorrhage
- C. Cerebral toxoplasmosis
- D. Glioblastoma
- E. Meningioma

No.: 221

E

Meningiomas are associated with neurofibromatosis, as are gliomas, neurofibromas and haemangiomas. Phaeochromocytomas, renal artery stenosis, pulmonary fibrosis and cardiomyopathy may be associated. Type I (peripheral type) is due to a mutation on chromosome 17 and type II (central, associated with bilateral acoustic neuromas) are due to a mutation of a gene on the long arm of chromosome 22 .

Olfactory groove meningiomas may also present with isolated symptom of anosmia.







<p>No.: 222</p> <p>A 29 Nigerian man has diplopia for three weeks. The diplopia is constant and is not associated with any other visual problems. He was treated for testicular cancer three years previously with an orchidectomy and adjuvant chemotherapy. He is a non smoker and drinks occasionally. His mother has a goitre, but there is no other family history .</p> <p>On examination, there was bilateral limitation of upgaze with a noticeable ptosis that seemed to become more pronounced during the examination. The left eye is limited in abduction. Fundoscopy was normal as was the rest of the neurological examination .</p> <p>FBC, glucose, U+E, LFT, ESR, ANCA, TFT and a contrast enhanced MRI of the brain were all normal .</p> <p>Which test would not form part of the routine diagnostic work up for this patient :</p> <p>Options</p> <p>A. EMG B. Anti acetylcholine receptor antibodies C. AP and lateral chest films D. Formal visual field testing E. Tensilon Test</p>	<p>No.: 222</p> <p><b>D</b></p> <p>Variable, asymmetrical oculomotor palsies strongly suggest a diagnosis of myasthenia gravis. The possible left sixth nerve and bilateral pupil-sparing third nerve palsies would be unusual resulting from any other cause. Meningeal carcinomatosis vasculitis or inflammatory disorders could be considered, although these are unlikely in the context of the normal MRI and ESR. Other neurological or systemic features would almost certainly be present in these cases. A Miller-Fisher variant of Guillain Barre (affecting face / eyes) is a possibility, but the course is too chronic .</p> <p>Myasthenia is a disorder of the neuromuscular junction with antibodies to the acetylcholine receptors. The gold standard for diagnosis is the tensilon test (administration with improvement seen), although an EMG (with decremental response on repetitive stimulation) and measurement of the antibodies are important. Chest films are important in diagnosing an associated thymoma (although MRI chest is better). There is also an argument to be made for a chest Xray to exclude sarcoidosis, which would be an important consideration in this patient.</p>
<p>No.: 223</p> <p>A 52-year-old man is referred because of progressive proximal weakness. He is a welder, he drinks 33 units of alcohol a week and smokes 15 cigarettes a day. There is no family history .</p> <p>On examination, there is a postural drop in blood pressure of 20mmHg. He has a very mild proximal weakness in all 4 limbs. Reflexes, tone and sensation are all normal .</p> <p>An EMG is ordered, it shows normal nerve conduction with an incremental increase in action potential with repetitive stimulation .</p> <p>What is the most appropriate next investigation :</p> <p>Options</p> <p>A. Muscle biopsy B. A CT scan of the chest C. Dexamethasone suppression test D. Serum B12 levels E. A tensilon test</p>	<p>No.: 223</p> <p><b>B</b></p> <p>The increase in action potential with repetitive stimulation is consistent with Eaton Lambert syndrome. This is a paraneoplastic disorder of the pre-synaptic calcium channel that usually occurs in association with small cell carcinoma of the lung. This would be consistent with his smoking history. Cushing's syndrome as a paraneoplastic phenomenon could also cause proximal weakness, although the action potential would not change with repetitive stimulation.</p>

No.: 224



These are slides of the same patient. What is the diagnosis :

Options

- A. Sarcoidosis
- B. Lymphoma
- C. SLED
- D. Behcet's disease
- E. Syphilis

No.: 224

D

The combination of erythema nodosum with oral and genital ulceration makes Bechet's disease the most likely diagnosis. Syphilis would not tend to produce orogenital ulceration in conjunction with this rash.



No.: 225



This middle aged man has mild dysphagia. What is the diagnosis :

Options

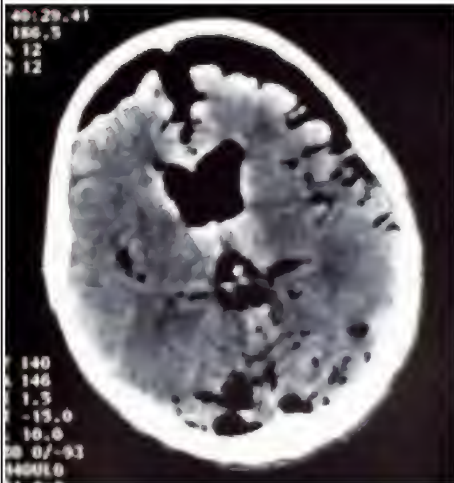
- A. Facioscapulohumeral dystrophy
- B. Panhypopituitarism
- C. Myotonic dystrophy
- D. Oculopharyngeal dystrophy
- E. Guillain-Barre Syndrome

No.: 225

D

Oculopharyngeal dystrophy is an autosomal dominant disease consisting of bilateral ptosis in association with dysphagia. Age of onset is usually after the 45th year. It has been mapped to chromosome 14 . None of the other stems would give this late onset pattern of ptosis with dysphagia.

No.: 226



A 24-year-old man is admitted after a road traffic accident. He has a Glasgow coma score of 5 / 15. He has a CT scan (shown below). What is the diagnosis :

Options

- A. Pneumocranium
- B. Contra-coup injury
- C. Atlanto-axial subluxation
- D. Extra-dural haemorrhage
- E. Sub-dural haemorrhage

No.: 226

A

Air appears black on CT. There is air surrounding the brain due to open cranial trauma.

No.: 227

A 32-year-old woman sees her GP with double vision and difficulty swallowing. He makes a provisional diagnosis of multiple sclerosis. While she is waiting for an outpatient's appointment, he prescribes a course of high dose oral prednisolone. Unfortunately her condition significantly deteriorates over the next few days. What is the most likely explanation for this :

Options

- A. Her disease is steroid resistant .
- B. The wrong tablets have been dispensed
- C. She has myasthenia gravis
- D. She has Lambert Eaton myasthenic syndrome
- E. Her multiple sclerosis is primary progressive type

No.: 227

C

The combination of swallowing and extra-ocular movement disturbance is strongly suggestive of myasthenia gravis. Although this is treated with steroids, it is usually covered with an anticholinesterase as steroids can, paradoxically, worsen the disease in the early stages. Lambert-Eaton is much less likely in such a patient. She should be admitted and given pyridostigmine along with the steroids, being monitored for any deterioration.





No.: 228

An 80-year-old retired army Colonel is brought in by his wife, because he has become confused and incontinent over the last three weeks. He has fallen several times. He smokes a pipe and drinks around half a bottle of gin a week .

General examination is normal. He has impaired short term memory and difficulty with performing basic tasks. He is orientated in time and place. His gait is abnormal, having small steps. Tone, power and reflexes are normal in the limbs .

He undergoes a diagnostic test, after which his condition improves. What is this test likely to be :

Options

- A. Lumbar puncture
- B. Levadopa trial
- C. Tensilon test
- D. CT scan of the brain
- E. Postural blood pressure assessment

No.: 228

A

This triad of apraxia, ataxia and urinary incontinence in an elderly patient is strongly suggestive of normal pressure hydrocephalus.( wacky, wobbly and wet being the pneumatic). This condition occurs due to impairment of cerebrospinal fluid reabsorption. It is diagnosed by a CT scan demonstrating increased ventricular volume or a lumbar puncture showing an increased opening pressure. A lumbar puncture may be of therapeutic benefit. A ventricular shunt may be required.





<p>No.: 1</p> <p>A 52-year-old man with hypertension and type 2 diabetes controlled with insulin notices that his insulin requirements have increased since the dose of his medication was increased. Which of the following drugs might be implicated :</p> <p>Options</p> <p>A. Amlodipine B. Bendrofluazide C. Ramipril D. Irbesartan E. Rosiglitazone</p>	<p>No.: 1</p> <p><b>A</b></p> <p>Metformin is a biguanide and exerts its effect mainly by decreasing gluconeogenesis and increasing peripheral utilisation of glucose. An important advantage is that hypoglycaemia is usually not a problem as compared to sulphonylureas, lower incidence of weight gain and lower insulin levels. Apart from GI side-effects, its main drawback is the propensity to lactic acidosis, especially in patients with renal impairment or in the setting of stress (infections, MI, surgery).</p>
<p>No.: 2</p> <p>A 52-year-old man with hypertension and type 2 diabetes controlled with insulin notices that his insulin requirements have increased since the dose of his medication was increased. Which of the following drugs might be implicated :</p> <p>Options</p> <p>A. Amlodipine B. Bendrofluazide C. Ramipril D. Irbesartan E. Rosiglitazone</p>	<p>No.: 2</p> <p><b>B</b></p> <p>All thiazide diuretics inhibit sodium resorption in the beginning of the distal convoluted tubule. At high doses, they cause an increase in serum glucose, lipids and uric acid, but these effects are small if low doses (e.g. bendrofluazide 2.5 mg od) are used. Higher doses should not be used for hypertension.</p>



No.: 3

A 55-year-old woman was found to have ++ glycosuria and had a maternal history of Type II diabetes mellitus. She was a smoker of 20 cigarettes per day. Examination reveals no specific abnormalities apart from a BMI of 30. Blood pressure was 132/88 mmHg .

Investigations reveal :

serum creatinine 80  $\mu$ mol/L (60  $\mu$  110)

plasma glucose (fasting) 11.3 mmol/L (3.0  $\mu$  6.0)

total serum cholesterol 5.5 mmol/L (<5.2)

HDL cholesterol 1.4 mmol/L (>1.55)

What is most likely to improve her life expectancy :

Options

A. Metformin 500 mg bd

B. Ramipril 10 mg daily

C. Simvastatin 10 mg daily

D. Stopping smoking

E. Weight loss to achieve a BMI of 25

No.: 3

D

She is diabetic and obese as defined by her BMI of 30. She is most prone to risk of cardiovascular disease and the best thing that she could do to improve her life expectancy would be to quit smoking.

No.: 4

A 65-year-old was advised to start oral digoxin at a dose of 250  $\mu$ g daily. His physician explained that the full effect of this treatment would not be apparent for at least a week .

Which one of the following pharmacokinetic variables did the physician use to give this explanation :

Options

A. Bioavailability

B. Half-life

C. Plasma protein binding

D. Renal clearance

E. Volume of distribution

No.: 4

BM





<p>No.: 5</p> <p>A 56-year-old woman with acute intermittent porphyria is referred by her GP for advice on drug therapy. She is a longstanding poorly-controlled hypertensive and 2 weeks ago a routine ECG showed her to be in AF. She has not had an acute exacerbation of AIP for over 7 years. Which of the following drugs is not safe for use in her treatment :</p> <p>Options</p> <p>A. Digoxin B. Atenolol C. Methyldopa D. Aspirin E. Bumetanide</p>	<p>No.: 5</p> <p>C</p> <p>Porphyria is often associated with hypertension. Centrally acting drugs such as methyldopa and clonidine, ACE inhibitors, calcium channel blockers and frusemide are contra-indicated. Among the diuretics, amiloride, bumetanide, acetazolamide, cyclopentiazide, and triamterene have been used safely. Digoxin, beta-blockers, heparin, and warfarin are also thought to be safe.</p>
<p>No.: 6</p> <p>A 14-year-old boy is seen in the Ambulance and Emergency Department. He is unconscious and he has a rash around his mouth. The following blood test results are found .</p> <p>pH 7.29 Na 135 K 5 Cl 110 HCO<sub>3</sub> 15 pCO<sub>2</sub> 4.5</p> <p>What has he taken?</p> <p>Options</p> <p>A. Methanol B. Ethylene glycol C. Opiates D. Glue E. MDMA</p>	<p>No.: 6</p> <p>D</p> <p>Drugs causing high anion gap acidosis include salicylates, methanol, ethylene glycol, and paracetamol. Impaired hepatic excretion of lactate, or conversion to acids metabolically can also result in acidosis with high anion gap. Drugs causing normal anion gap acidosis include amphotericin, acetazolamide, and solvents (toluene) *glue*. Another cause of normal anion gap acidosis is renal tubular acidosis .</p> <p>Glue poisoning usually gives rise to a distal (type 1) RTA, therefore a hyperchloremic acidosis with a normal anion gap.</p>





<p>No.: 7</p> <p>A 33-year-old man is found unconscious. There is no history available .</p> <p>O/E, he is tachycardic and hypotensive .</p> <p>CNS examination: GCS 7 hypertonia, no focal signs, hyperreflexive, pupils dilated RR 16 P 90 regular BP100/60 A bedside BM is 14</p> <p>The best management is likely to include :</p> <p>Options</p> <p>A. Ipecac syrup B. Cardiac monitoring C. Naloxone D. High dose diazepam E. Insulin</p>	<p>No.: 7</p> <p>B</p> <p>Onset of symptoms of tricyclic antidepressants poisoning can be within 4 hours. Clinical features include anticholinergic effects, brisk reflexes and extensor plantars, QT interval prolongation, coma, convulsions and respiratory depression in severe cases.</p>
<p>No.: 8</p> <p>Which is the least effective in preventing a 65-year-old hypertensive man from having heart failure:</p> <p>Options</p> <p>A. Lisinopril B. Metoprolol C. Amlodipione D. Chlorthalidone E. Doxazosin</p>	<p>No.: 8</p> <p>E</p> <p>The ALLHAT (Antihypertensive and Lipid Lowering to prevent Heart Attack Trial) was a randomised double blind controlled clinical trial conducted in 623 centres in North America. It randomised 42000 patients with hypertension aged &gt;55 years, who had one additional risk factor, to one of four antihypertensive treatments: lisinopril, amlodipine, chlorthalidone, or doxazosin. The mean follow up was 4.9 years. It had sufficient power to examine the combined incidence of fatal coronary heart disease and non-fatal myocardial infarction as the primary end point .</p> <p>Four major secondary end points were prespecified: all cause mortality, fatal and non-fatal stroke, combined coronary heart disease, and combined cardiovascular disease .</p> <p>The doxazosin arm was stopped prematurely in 2000 after a reported excess of cardiovascular events (principally CCF). There was no difference in the primary endpoint in the other arms, irrespective of the patient's sex, ethnicity, or the presence or absence of diabetes.</p>



No.: 9

An elderly woman presents with icterus. Her investigations are as follows :

Bilirubin 35, ALT 180, ALP 150, Free T3 0.2, CK 180, LDL 3.1 .

Which of these drugs is most likely to be the cause?

Options

- A. Phenytoin .
- B. Simvastatin .
- C. Rosiglitazone .
- D. Amiodarone .
- E. Digoxin.

No.: 9

D

Causes of drug-induced hepatitis include clarithromycin, isoniazid, pyrazinamide, phenytoin, methyldopa, statins, valproate, amiodarone, glitazones, and sulphonylureas .

Causes of drug-induced cholestasis include clarithromycin, sulphonylureas, carbamazepine, and chlorpromazine .

The presence of T3 investigation showing its level suggests that the drug is amiodarone.



No.: 10

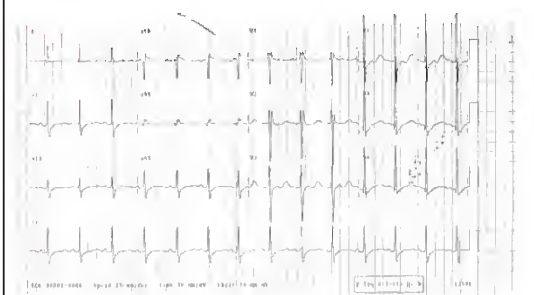


Figure 1

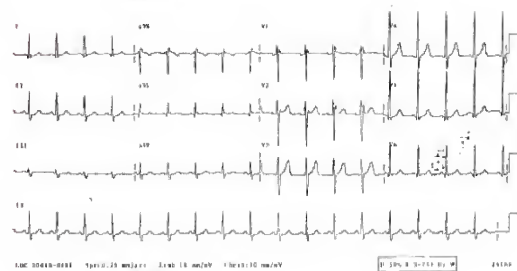


Figure 2

A 34-year-old Vietnamese waiter presents with a 2-day history of aching and heaviness of the lower limbs that spread over his whole body leading to progressive generalized weakness such that he was unable to stand or raise his arms. Past history consisted of a 3-month history of rash over his face and chest only and there was no significant family history. The only medication taken had been ibuprofen prn for the last 2 days. He was married with 2 children, smoked 15 cigarettes per day and drank little alcohol. On review of systems there was no breathlessness, fever, sweating, nausea or vomiting.

On examination he was alert and orientated and of thin build. There was a mild erythematous rash on his face. There was no lymphadenopathy. The pulse was 90 beats per minute, regular, BP 132/74, temperature 36.4; BM 4.9, SaO<sub>2</sub> 99% on air, PEFR 260 L/minute; respiratory rate 16/minute, but respiratory, cardiovascular and abdominal examination were otherwise unremarkable. On neurological examination there was no photophobia or neck stiffness and the cranial nerves were intact. However, tone was reduced and power was globally 2/5, with absent reflexes and absent plantars. Sensation was normal.

An ECG was obtained (see figure 1):

A treatment was initiated, the power improved to 4/5 over the next few hours and the following ECG was obtained (see figure 2):

Which one of the following treatments was given:

Options

- A. Intravenous immunoglobulins
- B. Intravenous dexamethasone
- C. Intravenous magnesium
- D. Intravenous potassium
- E. Intravenous atenolol

No.: 10

D

This patient had hypokalaemia with a serum potassium on admission of 2.1 mmol/L. The first ECG shows flattening of the T waves with large U waves. Following intravenous infusion of potassium the serum K rose to 5.4 mmol/L resulting in the appearance of normal T waves on the second ECG with loss of the U waves. His thyroid function tests revealed a free T<sub>4</sub> of 57.9 pmol/L and TSH < 0.01 mU/L. A diagnosis of thyrotoxic periodic paralysis (TPP) was made. TPP is a similar hypokalaemic syndrome to hereditary periodic paralysis (HPP) that complicates thyrotoxicosis especially in oriental men (Japanese, Chinese, Vietnamese, Korean, American Indian, Hispanic). The precipitants are exercise and carbohydrates. There is a rapid influx of K into cells associated with higher than normal Na channel activity. Treatment is by reversal of hyperthyroidism and use of beta-blockers.



No.: 11

You are asked to review a 49-year-old actor who has presented to A&E with recent onset of headache, weakness and dizziness. He has a history of type II diabetes for which he takes metformin. He drinks 20 units of alcohol per week and smokes 30 cigarettes per day. On examination he is obese and appears cyanosed, pulse 110 beats per minute, BP 104/64, third heart sound present but otherwise his respiratory, cardiovascular, abdominal and neurological examinations are unremarkable.

On pulse oximetry his SaO<sub>2</sub> was 88% breathing room air. Arterial blood gases were taken (on room air): pH 7.32, PaCO<sub>2</sub> 3.8 kPa, PaO<sub>2</sub> 10.8 kPa, bicarbonate 13.9 mmol/l. He was then given 3 litres of nasal oxygen, but his SaO<sub>2</sub> on oximetry increased only to 89%. Which of the following is the best approach to this problem:

Options

- A. Use the PaO<sub>2</sub> rather than the SaO<sub>2</sub> as the former is more reliable
- B. Initiate treatment for pulmonary embolism
- C. Initiate treatment for congestive cardiac failure
- D. Discontinue the metformin
- E. Consider abuse of amyl nitrite

No.: 11

E

The diagnosis is methaemoglobinaemia due to abuse of amyl nitrite, an oxidizing agent. Methaemoglobin (metHb) is Hb in the oxidized (Fe<sup>3+</sup>/ferric) form and cannot bind oxygen. Note that blood gas PaO<sub>2</sub> may be falsely reassuring as the partial pressure of dissolved O<sub>2</sub> may be normal: but oximetry will reveal the low O<sub>2</sub> saturation of the Hb .

Acquired metHb results when the rate of formation of metHb exceeds the rate of reduction after exposure to oxidizing agents e.g .:

nitrites, sulphasalazine, nitroprusside, dapsone, nitrofurantoin, primaquine, quinines, nitrobenzene, nalidixic acid, quinolones, aniline dyes, -caine local anaesthetics, and vitamin K. MetHb is darker in colour than deoxyHb so that 1.5g/dl metHb can produce cyanosis (compared to 5 g/dl deoxyHb). 30-40% metHb causes headache, fatigue, tachycardia, weakness and dizziness. 50-60% metHb causes dyspnoea, acidosis, arrhythmias, coma, and convulsions. >70% metHb causes death. Treatment of severe methaemoglobinaemia is methylene blue 1-2 mg/kg of a 1% solution given i.v. over 5 minutes. Repeat as needed for refractory cyanosis. Total dose should not exceed 7 mg/kg as high concentrations may actually cause oxidation of Hb and increase metHb levels. Ascorbic acid is a reducing agent but is inadequate in severe cases: it can be used in mild hereditary cases for cosmetic effect to reduce the cyanosis, as can oral methylene blue .





No.: 12

A 72-year-old hypertensive woman is changed from bendrofluazide to zestoretic (lisinopril and hydrochlorothiazide (HCT)). 24 hours after the first dose of zestoretic she develops marked periorbital swelling. She attends an eye hospital emergency department where she is advised to stop the zestoretic and take regular chlorpheniramine. The periorbital swelling starts to improve slowly but 3 days later she develops confluent macular rashes on her upper chest, and dorsal surfaces of her hands and feet.

The patient says that she had a reaction to a blood pressure tablet sometime in the past. On reviewing her notes you discover that she had a reaction to moduretic (hydrochlorothiazide and amiloride) in 1995 with swollen eyes and rashes on her arms.

Which of the following is most likely to account for the side effects on this occasion:

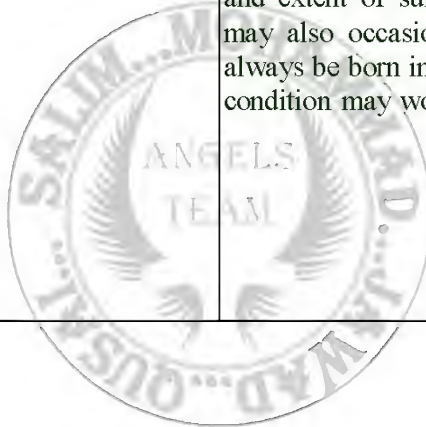
Options

- A. Lisinopril alone
- B. HCT alone
- C. Lisinopril and HCT
- D. Lisinopril and chlorpheniramine
- E. HCT and chlorpheniramine

No.: 12

B

This question highlights one of the hazards of using combination drugs. If there is an adverse drug reaction, it is difficult to know which of the drugs is responsible. Zestoretic is a combination of lisinopril and hydrochlorothiazide, moduretic is a combination of HCT and amiloride. The marked periorbital swelling was probably angioedema and the ACE inhibitor may initially seem the most likely candidate, however there was similar history of swollen eyes with the HCT/amiloride in the past and so it is more likely that the HCT is responsible for both adverse effects. The angioedema developed rapidly, the other rash is likely to be a photosensitive rash. The development of this took 4 days, rashes may have a delayed onset and so this is still compatible with being due to HCT; also in the case of a photosensitive rash this also depends on the timing and extent of sun exposure. However chlorpheniramine may also occasionally cause rashes itself. It should always be born in mind that treatments used to improve a condition may worsen it as well.





No.: 13

A 45-year-old printer presents to A & E with a 3 day history of aching and weakness of his limbs such that he had difficulty climbing stairs. There were no urinary or bowel symptoms. His past history included a gastrointestinal haemorrhage from a Mallory-Weiss tear 9 years previously from which time he was diagnosed with hypertension and treated with atenolol and chlortalidone. There was no known medical family history. He smoked 10 cigarettes/day and drank 2 cans of beer/day.

On examination he looked well, clinically euthyroid, pulse 80 beats per minute, regular, BP 186/94, respiratory, cardiovascular and abdominal examination were unremarkable, cranial nerves were intact, and he had grade II hypertensive changes on fundoscopy, normal tone, power 5/5, normal coordination, reflexes and sensation. Investigations :

Na 140 mmol/L ,  
K 2.9 mmol/L ,  
Cl 93 mmol/L ,  
HCO<sub>3</sub> 34 mmol/L ,  
urea 5.0 mmol/L ,  
creatinine 93 mmol/L ,  
glucose 5.6 mmol/L.

His bendrofluazide was stopped and he was commenced on regular potassium supplements and discharged 3 days later. In clinic renin and aldosterone measurements were taken, his atenolol having been replaced with amlodipine for the previous 2 weeks: recumbent renin <60 (230-1000), ambulatory renin 83 (460-1550) ,  
recumbent aldosterone 83 (135-400) ,  
ambulatory aldosterone 73 (330-830) .

Which of the following diagnoses would be most likely:

Options

- A. Conn's tumour
- B. Adrenal hyperplasia
- C. Gordon's syndrome
- D. Liddle's syndrome
- E. Glucocorticoid remediable aldosteronism

No.: 13

D

This is low renin, low aldosterone hypertension with hypokalaemia .

Conn's tumour and adrenal hyperplasia cause increased aldosterone levels, which suppress renin (low renin with high aldosterone). Glucocorticoid remediable aldosteronism (GRA) is an autosomal dominant trait also causing high aldosterone that suppresses renin. In GRA there is a crossover of the genes encoding aldosterone synthase and 11b-hydroxylase. Aldosterone production is then under the control of corticotrophin (ACTH) and is produced in excess. ACTH, and hence aldosterone, may be suppressed by giving a glucocorticoid such as dexamethasone. Gordon's syndrome is also known as pseudohypoaldosteronism type II, an autosomal disorder characterized by hypertension, hyperkalaemia, increased renal salt reabsorption and impaired potassium and hydrogen-ion excretion. There is increased activity of the NaCl co-transporter (NCCT) in the distal convoluted tubule leading to increased salt reabsorption, reduced renin activity and hence reduced aldosterone levels with resultant increased potassium and hydrogen-ion reabsorption. Thiazides correct all the abnormalities in this condition by inhibiting the NCCT. In Liddle's syndrome (autosomal dominant) mutations in the amiloride-sensitive epithelial sodium channel in the distal nephron result in increased Na reabsorption: K<sup>+</sup> is lost in exchange resulting in hypokalaemia, and the increased Na<sup>+</sup> results in suppressed renin and aldosterone. Other conditions to exclude with low renin low aldosterone hypertension with hypokalaemia are liquorice abuse and Apparent Mineralocorticoid Excess (AME) which is the genetic equivalent of liquorice abuse. These result in inhibition of/ genetic deficiency of 11b hydroxysteroid dehydrogenase type II: this enzyme normally converts cortisol to cortisone which, unlike cortisol, does not activate the mineralocorticoid receptor. Its lack results in overstimulation of the receptor by cortisol with increased salt and water reabsorption in the distal nephron with consequent hypertension. The mineralocorticoid receptor and hence AME is sensitive to spironolactone.



No.: 14

A 28-year-old man is admitted following a suspected overdose. His respiratory rate is 32/min. The following results are obtained :

Na 135  
K 5.4  
HCO<sub>3</sub>- 10  
Anion gap 33  
Base excess -18

Which of the following is he least likely to have ingested:

Options

- A. Aspirin
- B. Paracetamol
- C. Dexamfetamine
- D. Ethylene glycol
- E. Amitriptyline

No.: 14

The clinical picture is of a metabolic acidosis. The amfetamines are basic substances, hence elimination is greater in an acid urine hence an acid diuresis can be used to treat an overdose, although it is rarely necessary. Overdose is associated with excitement, peripheral sympathomimetic effects, convulsions and a state resembling hyperactive paranoid schizophrenia with hallucinations, hyperthermia, arrhythmias, vascular collapse and death. Treatment is with chlorpromazine and labetalol or phenoxybenzamine, as both alpha-adrenoceptor blockade and beta-adrenoceptor blockade are needed .

This case was due to ethylene glycol, methanol will result in a similar picture. Overdoses of aspirin (for which alkaline diuresis can be used to treat), paracetamol and amitriptyline may all cause metabolic acidosis.

No.: 15

You are called to review a 28-year-old female patient who has the following blood test results :

sodium 136mmol/L  
potassium 4.0mmol/L  
chloride 105mmol/L  
bicarbonate 15mmol/L  
urea 6.7mmol/L  
creatinine 90 μmol/L  
glucose 5.3mmol/L  
measured osmolality 300mOmol/Kg  
Lactate 1.3

Which of the following is the most likely drug that she has ingested?

Options

- A. Methanol
- B. Paracetamol
- C. Ethanol
- D. Salicylates
- E. Ethylene glycol

No.: 15







No.: 16

A 29-year-old patient arrives at the Accident and Emergency Department fifty minutes after an overdose of lithium .

On further questioning you ascertain that the preparation taken was a modified release one .

Which of the following management options would you consider?

Options

- A. Oral activated charcoal
- B. Whole bowel irrigation
- C. Induced vomiting with Ipecac
- D. Multi-dose activated charcoal
- E. Nasopharyngeal aspiration

No.: 16

B

Gut decontamination should be considered in patients presenting following an overdose .

Options for gut decontamination include :

.1 Induced vomiting is no longer recommended due to the risk of complications including aspiration .

.2 Gastric lavage should be considered in patients presenting within an hour of an overdose. It is contraindicated in patients presenting following ingestion of hydrocarbons due to the risk of chemical pneumonitis following aspiration and corrosives due to the risk of oesophageal perforation. Lithium slow release tablets are too large to pass through an orogastric tube .

.3 Activated charcoal should also be considered in patients presenting within an hour of an overdose. However activated charcoal is not appropriate following ingestion of metals, alcohols, hydrocarbons and acids and alkalis since charcoal does not adsorb these agents. Multiple doses of activated charcoal (Multi-Dose Activated Charcoal ♦ MDAC) may be appropriate following overdoses with modified/slow-release preparations, salicylates and drugs with significant entero-hepatic circulation .

4. Whole bowel irrigation is useful in patients presenting after overdoses of drugs not absorbed to charcoal, modified and slow release preparations, and in body-packers/stuffers drug traffickers.





No.: 17

A 21-year-old female underwent a day case surgical procedure (under general anaesthesia). Following the procedure you are called as she fails to start breathing unaided .

Which of the following neuromuscular blocking drugs could she have been given as part of the anaesthetic induction and explain her clinical condition?

Options

- A. Vecuronium
- B. Suxamethonium
- C. Altracurium
- D. Cistatracurium
- E. Pancuronium

No.: 17

B

Neuromuscular blocking agents can be divided into depolarising and non-depolarising drugs. Non-depolarising agents (including Vecuronium, Altracurium, Cistatracurium and Pancuronium) act by competing with acetyl choline at the neuromuscular junction and can be reversed by Neostigmine (an acetyl cholinesterase) .

Suxamethonium is a depolarising agent that initially activates the acetyl choline receptors at the neuromuscular junction. However due to the slow dissociation from the receptor it causes prolonged depolarisation and neuromuscular blockade. Approximately 1 in 2500 people have abnormal plasma pseudocholinesterases (either enzyme concentration or activity). Suxamethonium is normally metabolised by these enzymes and therefore abnormalities lead to prolonged duration of action .

Increasing local concentrations of acetyl choline at the neuromuscular junction is not effective in reversing its action due to its prolonged dissociation from the receptors .

Management of these patients is prolonged ventilation until spontaneous breathing occurs .

Relatives of these patients should be screened and suxamethonium avoided.



No.: 18

A 32-year-old male presents 45 minutes following an overdose of an unknown drug. Given that he has presented so early you have decided to give some activated charcoal .

In which of the following overdoses would activated charcoal not be an appropriate management?

Options

- A. Iron
- B. Paracetamol
- C. Salicylates
- D. Metformin
- E. Tricyclic antidepressants

No.: 18

A

Activated charcoal provides a large surface area for adsorbing drugs and toxins. It is suitable for patients presenting up to one hour following an overdose but not in patients who have ingested metals (e.g. iron, lithium), alcohols, hydrocarbons, acids and alkalis .

In adults a dose of 50g should be used, except in patients who have signs of bowel obstruction since it can cause constipation and worsen their clinical condition. It should not be mixed with foods to increase patient compliance since the charcoal will adsorb chemicals from the food and not the drugs ingested. In certain cases repeated doses of charcoal (Multi-dose activated charcoal - MDAC) may also be beneficial .

These include drugs with significant entero-hepatic circulation, slow or modified release preparations and salicylates. In the case of salicylates they form concretions in the stomach that delay gastric emptying and so MDAC should be given until plasma salicylate concentrations have started to fall. Activated charcoal should not be given in patients where an oral antidote is to be used, since the charcoal will also absorb these.



No.: 19

A 35-year-old male presents to the Accident and Emergency Department 8 hours after he overdosed on 24 x 500mg paracetamol tablets .

He has no significant past medical history, has had no previous deliberate self-harm attempts, is taking no regular medications and his ethanol intake is 35 units per week .

His initial blood results are shown below :

INR 1.1  
LFTs Normal  
Renal function Normal  
Paracetamol 60mg/L

Concentrations requiring treatment at 8 hours :

Normal risk 96mg/L  
High risk 48mg/L

Which of the following management options would be appropriate?

Options

- A. Treat with oral N-acetyl cysteine
- B. No treatment required
- C. Treat with oral methionine
- D. Treat with intravenous pabrinex
- E. Treat with intravenous N-acetyl cysteine

No.: 19

E

Patients following an overdose of paracetamol are classified as ♦normal risk♦ and ♦high risk♦ . □

Factors that make a patient high risk include enzyme inducing drugs, malnutrition, eating disorders, HIV infection, cystic fibrosis and regular ethanol intake per week of greater than 14 units in women and 21 units in men .

In this case the patient would be classified as high risk on the basis of his regular alcohol intake. He requires treatment since his serum paracetamol concentration is above the ♦high risk♦ paracetamol concentration at 9 hours .

Treatment options are intravenous N-acetyl cysteine or in patients with previous anaphylaxis with NAC, oral methionine if presenting and treatment can be initiated within 8 hours of ingestion.



<p>No.: 20</p> <p>A 46-year-old male presents to Accident and Emergency Department following a convulsion and he is noted to be cyanosed. Pulse oximetry is noted to be 98% on room air.</p> <p>Following your initial assessment you decide that an arterial blood gas is necessary:</p> <p>pH 7.47 PaO<sub>2</sub> 11.9 kPa PaCO<sub>2</sub> 4.9 kPa Measured saturations 80%</p> <p>Which of the following drugs would not explain the discrepancy between the pulse oximetry results and the measured oxygen saturations?</p> <p>Options</p> <p>A. Amyl nitrate B. Sulphasalazine C. Methylene blue D. Dapsone E. Lignocaine</p>	<p>No.: 20</p> <p><b>B</b></p> <p>This patient has arterial blood gas and pulse oximetry results that would be compatible with a diagnosis of methaemoglobinaemia .</p> <p>Classically the patient presents with a ◆ slate grey ◆ cyanosis and has normal oxygen saturations on pulse oximetry. However arterial blood gases show normal PaO<sub>2</sub> but a decreased measure of oxyhaemoglobin saturations. The differences occur because pulse oximetry measures oxyhaemoglobin as well as methaemoglobin .</p> <p>Common causes for methaemoglobinaemia include local anaesthetics, sulphonamides, nitrites and nitrates, dapsone, bromates, chlorates and in high concentrations methylene blue can cause methaemoglobinaemia.</p>
<p>No.: 21</p> <p>A 19-year-old female presents with nausea and vomiting following an overdose of an unknown drug. The results of an arterial blood gas test performed are:</p> <p>pH 7.47 PaO<sub>2</sub> 11.7 PaCO<sub>2</sub> 3.3 HCO<sub>3</sub><sup>-</sup> 21 mmol/L Base excess -1.3</p> <p>Which of the following drugs might she have taken?</p> <p>Options</p> <p>A. Methanol B. Amitriptyline C. Ammonium hydroxide D. Heroin E. Salicylates</p>	<p>No.: 21</p> <p><b>E</b></p> <p>The arterial blood gas results in this particular case represent a respiratory alkalosis (there is a raised pH with a low PaCO<sub>2</sub>). The remainder of the arterial blood gas is normal .</p> <p>Typical abnormal blood results seen following toxicological ingestion :</p> <p>Respiratory alkalosis (High pH, low PaCO<sub>2</sub>) ◆ salicylates (early)</p> <p>Respiratory acidosis (Low pH, high PaCO<sub>2</sub>) ◆ CNS depressants leading to reduced respiratory effort / drive</p> <p>Metabolic alkalosis (High pH, normal bicarbonate) ◆ Alkali ingestion</p> <p>Metabolic acidosis (Low pH, low bicarbonate, increased base excess) ◆ alcohols, tricyclic antidepressants, salicylates (late).</p>





No.: 22

A 73-year-old lady is taking antidepressant medication and her general physician starts her on a diuretic for some mild peripheral oedema.

She presents to Accident and Emergency Department with nausea, diarrhoea and confusion. Her initial renal function tests are shown below.

Which of the following antidepressants was she taking that interacted with the diuretic and caused her clinical condition?

Initial renal function tests:

Sodium 130 mmol/L

Potassium 3.7 mmol/L

Urea 7.5 mmol/L

Creatinine 160 mmol/L

Chloride 108 mmol/L

Bicarbonate 20 mmol/L

Options

A. Amitriptyline

B. Lithium

C. Citalopram

D. Reboxetine

E. Phenelzine

No.: 22





No.: 23

Following an acute myocardial infarction, an overweight 67-year-old male is discharged on Simvastatin 40mg o.d., Aspirin 75mg o.d., Ramipril 10mg o.d. and Atenolol 50mg o.d ..

He is seen in a cardiac rehabilitation clinic after 6 weeks and lifestyle measures (including altering his diet) are discussed. His BMI remains elevated at 28kg.m2 and he decides to make some dietary changes following the discussion .

After two weeks he presents with generalised myalgia and muscle tenderness. His creatinine kinase results are as follows :

Date: Creatinine Kinase (U/L) :

325 08/28  
1694 08/29  
1367 08/30  
542 08/31  
150 09/12  
499 09/25

Which of the following foodstuff can lead to this kind of clinical picture while the patient is on above drugs?

Options

- A. Grapefruit juice
- B. Broiled beef
- C. Brussels sprouts
- D. Cabbage
- E. Spinach

No.: 23

A

The statins; Pravastatin and Simvastatin are metabolised in the liver by the cytochrome P450 3A isoenzyme. Foods containing citrus flavanoids such as grapefruit juice inhibit this isoenzyme leading to decreased metabolism of these statins and increased risk of muscular toxicity .

Conversely foods such as cabbage, Brussel's sprouts, alcohol and broiled beef lead to stimulation of the cytochrome P450 1A isoenzyme and reduced plasma concentrations of drugs metabolised by this isoenzyme.





No.: 24

A 75-year-old gentleman is taking 125 micrograms of Digoxin and 5mg of Warfarin per day for chronic atrial fibrillations.

He is reviewed in the general medical outpatient department and the following blood test results are available:

Total cholesterol 5.6mmol/L

INR 2.1

Digoxin concentration 1.2nmol/L (NR 1-2nmol/L).

He has commenced on a lipid lowering agent and is seen after 8 weeks with the following results:

Total cholesterol 4.5mmol/L

INR 1.7

Digoxin concentration 0.8nmol/L

Which drug has he commenced taking that would explain these changes to his blood results?

Options

- A. Pravastatin
- B. Gemfibrozil
- C. Cholestyramine
- D. Nicotinic acid
- E. Ezetimibe

No.: 24

C

The anion-exchange resins, cholestyramine and colestipol, act by binding bile acids leading to decreased reabsorption and consequent increased liver uptake of LDL-cholesterol and decreased serum cholesterol concentrations .

These agents have been shown to decrease absorption of fat soluble vitamins (Vitamins A, D and K) and supplementation may be required .

In this case the patient was commenced on cholestyramine and, in addition to the reduction in the total cholesterol, his serum digoxin concentration and INR have fallen .

Anion-exchange resins have been shown to reduce absorption of certain drugs including digoxin, warfarin, thyroxine, thiazides, and paracetamol. To minimise these effects other drugs should be taken at least one hour before or 4 hours after the anion-exchange resin .

Other drug classes used in the management of hyperlipidaemia and their effects on the lipid profile include :

.1Fibrates ♦ Reduce triglycerides, total and LDL cholesterol and increase HDL-cholesterol .

.2Statins ♦ Reduce total and LDL cholesterol by inhibiting HMG-CoA .

.3Nicotinic acid ♦ Increase HDL-cholesterol and reduce LDL cholesterol and triglycerides .

4. Cholesterol absorption inhibitors ♦ Ezetimibe is a novel agent that specifically inhibits the uptake of cholesterol by the enterocytes. It does not have the same effect.



No.: 25

A 65-year-old lady is brought into the Accident and Emergency Department with a history of nausea, vomiting, confusion and a generalised headache. She is regularly using Digoxin for atrial fibrillation and has recently been depressed .

The Accident and Emergency Department Senior House Officer (SHO)suspects a Digoxin overdose and the patient confirms that she has taken an overdose 40 minutes ago .

The SHO has done the following investigations for you :

ECG: Sinus bradycardia with a rate of 45 bpm .  
Normal QRS complexes and no evidence of heart block

Blood test results :  
Sodium 145 mmol/L  
Potassium 6.5 mmol/L  
Urea 8.9 mmol/L  
Creatinine 150micromol/L

BP 96/60

Which of the following treatments is not appropriate in this patient?

Options

- A. Intravenous atropine 0.6mg
- B. 12 units of insulin in 50mls of 50% dextrose infusion
- C. 10 mls of 10% calcium gluconate intravenously
- D. Ordering of Digoxin specific antibodies
- E. Oral activated charcoal

No.: 25

C

Clinical features of Digoxin overdose include nausea, vomiting, confusion, visual disturbances and headache .

Any hyperkalaemia above 5.5 mmol/L should be treated with an insulin and dextrose infusion and if it remains elevated about 6.0 mmol/L then Digoxin specific antibodies should be given. Patients should not be given calcium gluconate or calcium chloride since this increase the risks of ventricular arrhythmias .

Other indications for the use of Digoxin specific antibodies include bradycardia or heart block with associated hypotension not responding to atropine or tachyarrhythmias with associated hypotension .

It is always essential in cases of severe poisoning to ensure that digoxin specific antibodies are available before the patient deteriorates and requires them .

Activated charcoal should be given to all patients who present within an hour of digoxin overdose and further doses may also confer some benefit.





No.: 26

An 18-year-old man was admitted to casualty at 3 am having collapsed at a nightclub. A friend, who had accompanied him in the ambulance but subsequently left A and E before speaking to a doctor, told the paramedics that his friend had been well earlier in the evening and that he usually did not drink much alcohol or take any drugs .

Investigations revealed :

Haemoglobin 8.6 x 10<sup>9</sup>/L

White cell count 25.8 x 10<sup>9</sup>/L

Neutrophils 22.5 x 10<sup>9</sup>/L

Lymphocytes 2.0 x 10<sup>9</sup>/L

Monocytes 0.8 x 10<sup>9</sup>/L

Eosinophils 0.4 x 10<sup>9</sup>/L

Basophils 0.1 x 10<sup>9</sup>/L

Platelets 32 x 10<sup>9</sup>/L

Reticulocyte count 12%

Prothrombin time 32 s

Activated partial thromboplastin time 90 s

Fibrinogen 0.3 g/L

D-Dimer screen 3.0 mg/L

Serum sodium 140 mmol/L

Serum potassium 6.3 mmol/L

Serum urea 17.5 mmol/L

Serum creatinine 200 mmol/L

Lactate dehydrogenase 540 IU/L

The blood film showed red cell fragmentation with polychromasia, toxic granulation of neutrophils and platelet anisocytosis .

What is the diagnosis?

Options Choose 1

- A. Autoimmune haemolysis
- B. Autoimmune thrombocytopaenia
- C. Disseminated intravascular coagulation
- D. Drug-induced haemolysis
- E. Thrombotic thrombocytopenic purpura

No.: 26

C

The coagulopathy, low fibrinogen, raised D-dimers, anaemia, high neutrophil count and thrombocytopenia are all indicative of disseminated intravascular coagulation (DIC). In addition the renal failure with high potassium levels (K) and lactate dehydrogenase (LDH) are suggestive of associated rhabdomyolysis. The causative agent is likely to be ecstasy/3,4-methylenedioxymethamphetamine (MDMA).





No.: 27

A 68-year-old woman with a history of chronic obstructive airways disease presents to her general practitioner (GP) with increasing shortness of breath. She has felt unwell for the last three days with a persistent cough productive of yellow/green sputum. She had started taking her home supply of prednisolone 30 mg for the last two days with no obvious improvement. She also has a home nebuliser, which she uses during exacerbations. At the time of presentation, she was taking two puffs of a serevent/flixotide combination inhaler twice daily, salbutamol 5 mg and ipratropium 500 mcg nebulised four times a day and theophylline as Uniphyllin Continus 200 mg twice daily .

On examination, her peak flow was 190 L/min, with widespread expiratory wheeze and coarse crepitations throughout all lung fields .

She was then started on oral clarithromycin 500 mg twice daily due previous allergy penicillin. Two days later the patient started to have episodes of loose stools, abdominal pain, nausea and vomiting. The patient was then prescribed metoclopramide, which alleviated her vomiting but nausea persisted. She subsequently developed a tremor of her hands and palpitations, which the patient felt were due to her nebulisers .

How would you further manage this patient?

Options Choose 1

- A. Change antibiotics
- B. Change another anti-emetic
- C. Check theophylline levels
- D. Reduce dose of salbutamol nebulisers
- E. Stop metoclopramide

No.: 27

The patient's symptoms of gastrointestinal (GI) upset, tremor and palpitations are all attributable to theophylline toxicity. Clarithromycin and theophylline interact with a rise in plasma theophylline levels. There is no interaction between metoclopramide and theophylline.





No.: 28

A 50-year-old woman with a past medical history of multiple sclerosis was admitted to hospital following an overdose of baclofen. She was diagnosed with relapsing and remitting multiple sclerosis 15 years ago and is usually mobile with two sticks. She performs intermittent self-catheterisation and her only medication is baclofen 20 mg three times a day .

She was found surrounded by empty baclofen bottles by her son one evening after he had returned from a night out with his friends. Earlier that evening, the patient and her partner had an argument after which he had left the house. According to her partner, there were approximately 20 tablets left in the packet, each containing 10 mg of baclofen (150 mg of baclofen is associated with severe toxicity) .

She smokes 15 ♦ 20 cigarettes per day and drinks alcohol occasionally. The only other past medical history of note is a previous admission 18 months ago with severe community acquired pneumonia, during which she needed mechanical ventilation .

On examination, she was drowsy with a respiratory rate of 6 breaths per minute. She had a Glasgow coma scale (GCS) of 8/15 (eye = 2, verbal = 2, motor = 4) and neurological examination revealed generalised hyporeflexia. Pulse rate was 58 beats per minute (bpm) and blood pressure was 90 systolic and 58 diastolic. Examination of respiratory, cardiovascular and abdominal system was unremarkable save for a systolic murmur at the lower left sternal edge .

Her arterial blood gases on 60% inspired O<sub>2</sub> were as follows :

pH 7.33  
PO<sub>2</sub> 20.0 kPa  
PCO<sub>2</sub> 7.3 kPa  
HCO<sub>3</sub> 27 mmol/L  
Base excess 0.5

What would be your next step in the management of this patient?

Options Choose 1

- A. Increase concentration of inspired oxygen
- B. Intravenous doxapram infusion
- C. Intubation and mechanical ventilation
- D. Non-invasive positive pressure ventilation (NIPPV)
- E. Reduce concentration of inspired oxygen

No.: 28

**C**  
The patient is hypoventilating secondary to central nervous system depression and developing a subsequent respiratory acidosis. The only treatment for this is mechanical ventilation. NIPPV, doxapram, reduced oxygen concentration are for the treatment of respiratory acidosis in severe chronic obstructive pulmonary disease (COPD) whereby the patient has adapted to chronic hypoxaemia and hypercapnoea.



No.: 29

A 26-year-old female unresponsive at home is found by her boyfriend. She has a known history of depression. On examination, she has a respiratory rate of 8/min, temperature of 38.2°C, thready pulse of 150 beats/min and blood pressure (BP) 80/40. Chest was clear bilaterally with shallow respiratory effort. Abdomen was soft and non-tender. On neurological examination, she had no neck stiffness, Glasgow coma scale (GCS) 6/15 and had symmetrically brisk reflexes .

Investigations :

Haemoglobin (Hb) 13.4 g/dl  
White cell count (WCC) 11.8 x 10<sup>9</sup>/l  
Platelets 290 x 10<sup>9</sup>/l

Plasma sodium 133 mmol/l  
Plasma potassium 3.9 mmol/l  
Plasma urea 6.9 mmol/l  
Plasma creatinine 114 umol/l  
Plasma glucose 5.4 mmol/l  
Plasma calcium 2.21 mmol/l  
Chest C-ray Normal  
ECG Wide complex tachycardia

Arterial blood gases on air :

PaO<sub>2</sub> 11.2 kPa  
PaCO<sub>2</sub> 5.9 kPa  
pH 7.31  
B.E. -6.4

CT brain Normal

Cerebral spinal fluid (CSF) opening pressure 18 cm H<sub>2</sub>O  
CSF cell count 3 cells/ml  
CSF protein 0.3 g/l  
CSF glucose 4.6 mmol/l

Shortly after the lumbar puncture, she had a grand mal seizure .

What is the most likely diagnosis?

Options

- A. Cerebral hypoperfusion secondary cardiac disease
- B. Tricyclic antidepressant overdose (TCA OD)
- C. Herpes simplex encephalitis
- D. Meningococcal meningitis
- E. Subarachnoid haemorrhage

No.: 29

The clinical picture of hypotension, broad complex tachycardia, hyperthermia, hypoventilation, coma and seizure are classical features of TCA OD. Hopefully you would have recognised this before subjecting the patient to unnecessary lumbar puncture (LP)!







<p>No.: 30</p> <p>A 24-year-old woman with epilepsy attended the outpatient clinic after having a positive pregnancy test. She had not had a period for 14 weeks and usually had a regular 28-day menstrual cycle. She had been diagnosed with epilepsy at 19 years of age when she suffered two tonic-clonic seizures. At that time she was started on sodium valproate and had taken this for 5 years without suffering any further seizures .</p> <p>Given the positive pregnancy test, what action should be taken with regard to her anticonvulsant therapy?</p> <p>Options</p> <p>A. Continue sodium valproate B. Convert sodium valproate to carbamazepine C. Convert sodium valproate to lamotrigine D. Reduce dose of sodium valproate E. Stop sodium valproate</p>	<p>No.: 30</p> <p>A</p> <p>There is a risk of teratogenicity with all anti-epileptics and no convincing data that any agent is particularly safer than another in pregnancy. However, her overall risk of foetal abnormality on one agent is around 5%. She is already well through the first trimester, so any teratogenic effects are already likely to have occurred. Discontinuation or reduction of valproate may well precipitate further seizures, which may have profound consequences for both the mother and foetus and is definitely not recommended.</p>
<p>No.: 31</p> <p>A 25-year-old male epileptic, was admitted to Casualty having had a series of tonic-clonic seizures at home. He was taking regular oral phenytoin. On examination, he was unconscious and having continuous seizures .</p> <p>Intravenous access was secured and he was given intravenous lorazepam. 3 boluses of lorazepam five minutes apart were required to bring his seizures under control. However, 40 minutes later he had another convulsion .</p> <p>Which of the following agents should be administered next?</p> <p>Options</p> <p>A. Intravenous lorazepam B. Intravenous fosphenytoin C. Intravenous clonazepam D. Intravenous thiopental E. Intravenous sodium valproate</p>	<p>No.: 31</p> <p>B</p> <p>IV Fosphenytoin is now the drug of choice in status epilepticus when benzodiazepines have failed. It is quicker in onset, more predictable and less arrhythmogenic than iv phenytoin. Changing to a different benzodiazepines (BZD) is pointless, thiopental is not indicated in status epilepticus (as opposed to phenobarbitone) and neither is iv valproate.</p>



No.: 32

A 54-year-old man was admitted to hospital with cellulitis and treatment started with intravenous flucloxacillin and amoxycillin. He had a past history of severe depression and had been an inpatient several times for treatment. On the fourth day of his admission he complained of epigastric pain and started to vomit bright red blood.

On examination, his blood pressure was 90/55 mm Hg with pulse 116 beats per minute. He admitted to taking a box of injections from the treatment room on the ward 8 h previously and self-administering them through his venflon. An empty box of tinzaparin was subsequently found on the floor of his room by the nurses.

What specific antidote should be administered?

Options Choose 1

- A. Fresh frozen plasma
- B. None ♦ no specific antidote exists
- C. Platelet transfusion
- D. Protamine sulphate
- E. Vitamin K

No.: 32

Whilst the response of low molecular weight heparin to reversal by protamine is not as easily predictable as it is for unfractionated heparin, it is nevertheless a specific antidote and protamine will reverse its effects.

No.: 33

A 16-year-old girl was admitted to hospital with nausea and vomiting due to possible viral gastroenteritis. She was given some intravenous anti-emetic earlier in Accident and Emergency Department. You have been called urgently onto the ward, because the nursing staff inform you that she is fitting. On arrival, the patient was looking upwards in a fixed stare, had a stiff neck and spasm of the jaw muscles.

What would be your treatment of choice?

Options Choose 1

- A. Intravenous benztropine
- B. Intravenous dantrolene
- C. Intravenous cefotaxime
- D. Oral bromocriptine
- E. Rectal diazepam

No.: 33

This patient has developed an acute severe extrapyramidal reaction to metoclopramide. The treatment of choice is benztropine or trihexyphenidyl (benzhexol).



No.: 34

A 23-year-old student is brought into the casualty department drowsy by her friend. The patient lives alone in a one bedroom flat. She is normally fit and well although had recently been complaining of difficulty concentrating in lectures. She smokes 20 cigarettes a day. She was on no medication and had no previous medical history of note. She had vomited. On examination she was flushed. She had a bounding pulse of 120 beats per minute. Her blood pressure was 180/100 mmHg. Oxygen saturations were normal .

Initial investigations showed :

Haemoglobin 13.1 g/dL  
 White cell count 9.8 x 10<sup>9</sup>/L  
 Platelets 210 x 10<sup>9</sup>/L  
 Serum sodium 134 mmol/L  
 Serum potassium 3.68 mmol/L  
 Serum urea 7.4 mmol/L  
 Serum creatinine 80 umol/L  
 Drug screen Negative

Arterial blood gases on air :

pO<sub>2</sub> 8.6 kPa  
 pCO<sub>2</sub> 4.7 kPa  
 pH 7.42

The chest X-ray was normal .

What investigation would confirm the diagnosis?

Options Choose 1

- A. Blood glucose
- B. Blood lactate
- C. Carboxy haemoglobin
- D. Electroencephalogram
- E. Lumbar puncture

No.: 34

**C**  
 This is a classic MRCP case of the drowsy, hypoxic but flushed (pink!) patient with normal oxygen saturation, who lives alone in poorly maintained bedsit and has developed carbon monoxide poisoning.





No.: 35

A 26-year-old air hostess is brought to A&E following a witnessed grand mal seizure. She has been previously fit and well except for a history of mild intermittent arthralgia affecting both hands. Her only medication is the OCP, she smokes 20/day and drinks 15 units of alcohol per week.

On examination she has no focal neurology. There is slight puffiness of the fingers and a low grade pyrexia of 37.6 C. BP 160/98 mmHg. Fudoscopy reveals silver wiring and AV nipping bilaterally. Urinalysis tests 3+ blood 2+ protein

Results: Hb 9.9g/dl, MCV 83fl, WCC 3.1 X 10<sup>9</sup>/l, platelets 117 X 10<sup>9</sup>/l. CRP 2g/l, ESR 71mm in the first hour. Sodium 134 mmol/l, potassium 5.1 mmol/l, urea 10.1 mmol/l, creatinine 178mmol/l. Albumin 30g/l, total protein 80g/l. LFTs normal. BM 7.8mmol

Clotting screen PTT 11 seconds APTT 39seconds VDRL positive 1:320

Drug screen of urine negative. Plasma alcohol not detected

The patient then develops acute dyspnoea and examination reveals decreased air entry at the right base, tachycardia, BP 105/55. O2 sats 94% on room air

She responds well to prednisolone and azathioprine, but at a OPD appointment 3 months later is complaining of worsening right hip pain poorly responsive to NSAIDs.

X-ray is normal but bone scan shows increased uptake in the hip

What is the most likely cause of her hip pain?

Options Choose 1

- A. Osteoporosis
- B. Avascular necrosis
- C. Septic arthritis
- D. Stress fracture
- E. Trochanteric bursitis

No.: 35

B

The presentation with a fit in the absence of structural or metabolic derangement accompanied with pancytopenia, arthralgia, and an elevated ESR with normal CRP is indicative of SLE

This patient has CNS and renal lupus. The positive VDRL, prolonged APTT and PE is comptable with associated anti-phospholipid syndrome.

AVN is a well recognised complication of steroid treatment.







<p>No.: 36</p> <p>A 55-year-old woman was referred to the dermatology clinic after developing a rash on her arms and legs, predominantly on the knees and elbows. The rash had been present for about a month .</p> <p>She had a history of congestive cardiac failure and had been started on treatment with furosemide and ramipril by her General Practitioner 6 months previously. She also had a long history of bipolar disorder and had been started on lithium 3 months previously by her psychiatrist having been taking chlorpromazine for 5 years. Six weeks previously she had been given a course of oxytetracycline for a dental abscess .</p> <p>Which of her medications is most likely to have precipitated the rash?</p> <p>Options</p> <p>A. Chlorpromazine B. Furosemide C. Lithium D. Oxytetracycline E. Ramipril</p>	<p>No.: 36</p> <p>C</p> <p>All of these drugs may cause cutaneous reactions but the timing best fits with the lithium. Whilst it has not done so in this case, Lithium is a cause of Stevens-Johnson syndrome and may also precipitate or exacerbate psoriasis.</p>
<p>No.: 37</p> <p>A 21-year-old woman presents with paracetamol poisoning 2 and a half days after ingestion of 32 paracetamol tablets. Her history is considered to be reliable and her blood sugar by finger prick test was 2.9mmol/l .</p> <p>What would be your treatment of choice:</p> <p>Options Choose 1</p> <p>A. Haemodialysis B. Intravenous dextrose infusion C. Intravenous N-acetylcysteine only after paracetamol level known D. Oral activated charcoal E. Immediate intravenous N-acetylcysteine</p>	<p>No.: 37</p> <p>E</p> <p>NAC is most effective if given within 8 hours of paracetamol ingestion. However, studies have shown a beneficial effect up to 72-120 hours after ingestion .</p> <p>The hypoglycaemia indicates hepatic impairment already so the paracetamol level at this stage is irrelevant. Oral activated charcoal is only indicated in the first hour after ingestion and haemodialysis is not indicated for paracetamol OD per se (although it may be required if renal failure ensues).</p>



No.: 38

A 58-year-old man with a history of renal transplantation 8 years ago presented with fever, cough and dyspnoea for 48 hours. He has developed a cough productive of purulent green sputum with occasional haemoptysis. He was under 6-monthly review by the renal physicians with stable renal function. His medical therapy consisted of azathioprine and ciclosporin. 3 months ago he was diagnosed as having gout and was started on indomethacin followed by allopurinol.

On examination he looked pale with a tachycardia of 120/minute regular and a blood pressure of 95/55. His heart sounds were normal. Examination of his chest revealed a dull percussion note, increased vocal resonance and bronchial breathing at the left base.

Investigations on admission showed :

Haemoglobin 6.8g/dl

Neutrophils  $0.1 \times 10^9/l$

Lymphocytes  $0.05 \times 10^9/l$

Platelets  $60 \times 10^9/l$

Serum sodium 142mmol/l

Serum potassium 3.9mmol/l

Serum chloride 98mmol/l

Serum bicarbonate 19mmol/l

Serum urea 22.4mmol/l

Serum creatinine 253 $\mu$ mol/l

Plasma glucose 7mmol/l

What is the most likely cause of his current condition:

Options Choose 1

A. Azathioprine toxicity

B. Ciclosporin toxicity

C. Type A adverse reaction to indomethacin

D. Type B adverse drug reaction due to allopurinol

E. None of the above

No.: 38

A

Clinically he has developed left-sided bronchopneumonia secondary to profound immunosuppression.

The most striking abnormality is his pancytopenia which is a well-recognised feature of azathioprine toxicity. This is likely to have been precipitated by the introduction of allopurinol.

A type A adverse drug reaction is pharmacologically expected from the known mode of action, type B is a Bizarre ie unexpected reaction, type C relates to chronic use, type D is a delayed reaction, type E is an end of therapy reaction and type F is a failure of therapy.

There are many potential causes of his renal impairment:

- Pneumonia
- Ciclosporin
- NSAID
- Interstitial nephritis





<p>No.: 39</p> <p>A 62-year-old obese heavy smoker with angina and a fasting BM of 9 wants to improve his lifespan. Which single intervention will be most suitable :</p> <p>Options</p> <p>A. Aspirin B. Nutritionist support C. Insulin D. Nicotine Replacement Therapy E. Cerivastatin</p>	<p>No.: 39</p> <p>A</p> <p>This is an evidence question. The strongest evidence is in favour of aspirin (20% reduction in cardiac events over ten years in this patient group) The Royal College is hardly going to advocate a nutritionist as a means of improving on their wonderful treatment, and besides, there is no mortality data. Insulin is not indicated until diet and exercise and oral hypoglycemic agents have failed .</p> <p>NRT has a 15-20% success rate, only double that of willpower. There is no direct evidence to show improvement in longevity, although it is reasonable to assume that it will help .</p> <p>Cerivastatin has been removed from the UK market after unacceptable frequency of myositis. We don't know this man's cholesterol level.</p>
<p>No.: 40</p> <p>You are asked to advise on analgesia for a 44-year-old woman with acute intermittent porphyria who has undergone wisdom teeth extraction. Which of the following drugs is not safe for use in her treatment :</p> <p>Options</p> <p>A. Paracetamol B. Ibuprofen C. Dihydrocodeine D. Diclofenac E. Diamorphine</p>	<p>No.: 40</p> <p>D</p> <p>Since many drugs can induce acute porphyric crises, great care must be taken when prescribing for patients with acute porphyria. If you cannot remember which drugs are unsafe for use in acute porphyria include apply the following two rules first (which will cover many, but not all possibilities) :</p> <p>1) Centrally acting drugs (2) Enzyme inducers</p> <p>Examples: barbiturates, tricyclic antidepressants, MAOIs, amphetamines, anabolic steroids, hormone replacement therapy, benzodiazepines, diuretics, captopril, cephalosporins, erythromycin, isoniazid, sulphonamides, sulphonylureas, theophylline, antihistamines, nifedipine, verapamil, amiodarone, and simvastatin .</p> <p>Of the commonly available analgesics, diclofenac should be avoided.</p>



No.: 41

A 69-year-old man with longstanding COPD requiring long-term steroid therapy sustains a crush fracture of his thoracic vertebrae due to corticosteroid-induced osteoporosis. Which of the following treatments is least suitable :

Options

- A. Calcium supplements alone
- B. Calcium and vitamin D
- C. Hormone replacement therapy
- D. Bisphosphonates
- E. Calcitriol

No.: 41

Hormone replacement: HRT in females or testosterone in hypogonadal men; bisphosphonates and calcitriol (1,25 dihydroxycholecalciferol) are the only treatment options for corticosteroid induced osteoporosis .  
Ref for testosterone :

Recommendations for the prevention and treatment of glucocorticoid-induced osteoporosis: 2001 update. American College of Rheumatology Ad Hoc Committee on Glucocorticoid-Induced Osteoporosis .  
SO - Arthritis Rheum 2001 Jul;44(7):1496-503 .

Testosterone therapy in glucocorticoid-treated men .  
AU - Reid IR; Wattie DJ; Evans MC; Stapleton JP  
SO - Arch Intern Med 1996 Jun 10;156(11):1173-7 .

Randomized placebo-controlled trial of androgen effects on muscle and bone in men requiring long-term systemic glucocorticoid treatment .  
AU - Crawford BA; Liu PY; Kean MT; Bleasel JF; Handelsman DJ  
SO - J Clin Endocrinol Metab 2003 Jul;88(7):3167-76 .

No.: 42

A 69-year-old man has an abnormality picked up on routine blood testing. Na 129 mmol/l, K 4.2 mmol/l, Cl 98 mmol/l, HCO<sub>3</sub> 28 mmol/l, Urea 6.2 mmol/l, Cr 90 mcmmol/l .

Which of the following drugs could cause this:

Options

- A. Prednisolone
- B. Octreotide
- C. Chlorpropamide
- D. Carbimazole
- E. Metformin

No.: 42







<p>No.: 43</p> <p>A 63-year-old woman presents with retrosternal chest pains. ECG and CXR are normal. Upper GI endoscopy reveals severe oesophageal erosions and ulcerations. Which of the following drugs could be the culprit :</p> <p>Options</p> <p>A. Calcitonin B. Clomifene C. Metformin D. Prednisolone E. Alendronate</p>	<p>No.: 43</p> <p>E</p> <p>Alendronic acid is a bisphosphonate and is used in the treatment of post-menopausal osteoporosis, Paget's disease and hypercalcaemia of malignancy. It may cause severe oesophagitis and ulceration, and so patients are advised to swallow the tablets with a full glass of water and to remain standing or sit upright for 30 min.</p>
<p>No.: 44</p> <p>A 50-year-old man with acromegaly and diabetes presents with right upper quadrant pain and jaundice. USS abdomen shows biliary dilatation and multiple gallstones. A large gallstone is removed from the common bile duct at ERCP. Which of the following drugs is the likely culprit :</p> <p>Options</p> <p>A. Metformin B. Bromocriptine C. Mixtard insulin D. Octreotide E. Simvastatin</p>	<p>No.: 44</p> <p>D</p> <p>Octreotide is a long-acting analogue of the hypothalamic release-inhibiting hormone somatostatin. It is indicated for the relief of symptoms associated with gastro-pancreatic endocrine tumours and acromegaly. Side-effects include anorexia, nausea, vomiting, bloating, flatulence. Gallstone formation is reported after long-term usage (abrupt withdrawal may result in biliary hypercontractility with associated biliary colic and pancreatitis).</p>
<p>No.: 45</p> <p>A 48-year-old woman is referred by her GP after a routine FBC showed Hb 10.9g/dl, WCC <math>1.9 \times 10^9/l</math>, Plts <math>148 \times 10^9/l</math>, neutrophils 0.0, lymphocytes <math>1.3 \times 10^9/l</math>. Which of the following drugs is the likely culprit :</p> <p>Options</p> <p>A. Carbimazole B. Clomifene C. Chlorpropamide D. Alendronate E. Calcitonin</p>	<p>No.: 45</p> <p>A</p> <p>The woman has agranulocytosis as a complication of carbimazole therapy. Patients prescribed this drug are always warned to seek medical attention if they develop symptoms or signs of infection, in particular a sore throat. Carbimazole should be stopped promptly, and the neutropenia is reversible.</p>



<p>No.: 46</p> <p>A 36-year-old entrepreneur is referred for increasing constipation. Over the past few months he has suffered severe dyspepsia and has been taking large amounts of antacids. Examination is unremarkable apart from a loaded rectum. Which of the following is the MOST likely culprit :</p> <p>Options</p> <p>A. Sucralfate B. Magnesium trisilicate C. Aluminium hydroxide D. Calcium carbonate E. Cimetidine</p>	<p>No.: 46</p> <p><b>C</b></p> <p>Both aluminium and magnesium containing antacids such as magnesium carbonate, hydroxide and trisilicate and aluminium glycinate and hydroxide, being relatively insoluble in water, are long acting and retained in the stomach. They give good symptomatic relief but rarely effect healing of the cause of the dyspepsia. Magnesium containing antacids tend to be laxative while aluminium containing preparations may be constipating especially if taken in large quantities. Aluminium accumulation is not a risk if renal function is normal.</p>
<p>No.: 47</p> <p>A 53-year-old woman with arthritis is started on a drug to protect her GI tract from the effects of the NSAIDs. Two weeks later she returns with vaginal bleeding and diarrhoea. Both of these resolve when the drug is changed. Which of the following is the likely culprit :</p> <p>Options</p> <p>A. Omeprazole B. Cimetidine C. Misoprostol D. Sucralfate E. Aluminium hydroxide</p>	<p>No.: 47</p> <p><b>C</b></p> <p>Misoprostol is a synthetic prostaglandin analogue has antisecretory and protective properties, promoting gastric and duodenal ulcer healing. It is used principally to prevent NSAID-associated ulcers, and it is most appropriate for the elderly or frail in whom the NSAIDs cannot be withdrawn. Side effects include diarrhoea, abdominal pain, flatulence, nausea and vomiting, abnormal vaginal bleeding (including intermenstrual and post-menopausal bleeding) rashes, etc. It should not be given to women of child-bearing age without adequate contraception as there is a risk of spontaneous abortion.</p>



No.: 48

A 16-year-old man is seen by his GP for a severe sore throat for which he prescribes an antibiotic. One week later he returns with jaundice. LFTs show :

Bili 36mmol/L ,  
AST 62IU/L ,  
ALT 56IU/L ,  
AlkPhos 172IU/L ,  
Alb 40g/l .

Which of the following drugs is the most likely culprit :

Options

- A. Erythromycin
- B. Rifampicin
- C. Amoxycillin
- D. Ciprofloxacin
- E. Tetracycline

No.: 48

A

The patient has mild cholestatic jaundice likely to have been precipitated by erythromycin therapy. Here the culprit is the ester which is coupled with erythromycin. Other causes of hepato-canalicular cholestasis include chlorpromazine, haloperidol, cimetidine, nitrofurantoin, imipramine, azathioprine, dextropropoxyphene and oral hypoglycaemics.

No.: 49

A 28-year-old HIV-positive man is admitted with a four day history of fever and a dry cough. He is started on treatment for an 'atypical' pneumonia. Several days later his renal function has deteriorated dramatically, although his chest infection has improved. Which of the following drugs is most likely to have been responsible in this setting?

Options

- A. Gentamicin
- B. Tetracycline
- C. Cotrimoxazole
- D. Amphotericin B
- E. Penicillin

No.: 49

C

The patient was treated for a presumed Pneumocystis carinii pneumonia with cotrimoxazole. This is a combination of trimethoprim and sulfamethoxazole. There are numerous possible side effects including bone marrow suppression, hepatotoxicity, seizures and ataxia. It is nephrotoxic and can produce a spectrum of effects from mild electrolyte disturbance to interstitial nephritis.



<p>No.: 50</p> <p>A 28-year-old woman who has started on a new agent for her rheumatoid disease some months previously presents with a rash over her face and cheeks, sharp chest pleuritic chest pains and worsening arthralgia. Renal function is normal. Which is the most likely of her drugs to have caused this :</p> <p>Options</p> <p>A. Azathioprine B. D-penicillamine C. Methotrexate D. Rofecoxib E. Gold</p>	<p>No.: 50</p> <p><b>B</b></p> <p>The patient describes the features of D-penicillamine induced Lupus syndrome. The syndrome is more common in slow acetylators and is also associated with other drugs such as hydralazine, procainamide, isoniazid. It is also described with penicillin, sulphonamides and phenytoin. Typically there is arthralgia, mild systemic features, rashes and pericarditis, but seldom renal or cerebral disease. It usually disappears when the drug is stopped.</p>
<p>No.: 51</p> <p>A 39-year-old woman with severe rheumatoid arthritis is started on a new drug by the rheumatologist in the regional centre. She returns several weeks later complaining of blurred vision, headaches and that 'her hair is falling out'. She has inadvertently been taking twice the recommended dose of drug prescribed. Which is the most likely of her drugs to have caused this :</p> <p>Options</p> <p>A. Rofecixib B. Gold C. Hydroxychloroquine D. Prednisolone E. D-penicillamine</p>	<p>No.: 51</p> <p><b>C</b></p> <p>The patient describes the features of chloroquine toxicity. Many of the disease modifying anti-rheumatic drugs (DMARDs) have similar side-effects including rashes, bone marrow suppression and other haematological side-effects, along with liver and renal impairment. Anti-malarial drugs like chloroquine can produce a retinopathy but this is rare at normal therapeutic doses. Patients should have 6-monthly tests of macular function with an Amsler chart as the retinopathy is irreversible.</p>





<p>No.: 1</p> <p>A poorly-controlled 25-year-old diabetic patient with a history of an eating disorder during adolescence presents with sudden, painless reduction of vision of one eye over a matter of minutes. She can just make out faces and shadows from that eye. The most likely diagnosis with that history is :</p> <p>Options</p> <p>A. Detached retina B. Central retinal arterial occlusion C. Vitreous haemorrhage D. Acute glaucoma E. Cataract</p>	<p>No.: 1</p> <p><b>E</b></p> <p>Systemic hypertension affects the visual system from retina to visual cortex. Typical features of hypertensive retinopathy include arteriovenous nipping, arteriolar attenuation, venous tortuosity, cotton wool spots, flame haemorrhages, hard exudates around the macula (◆macular star◆), and optic disc swelling. Although central retinal vein occlusion is associated with systemic hypertension, it is very rare to present with bilateral and simultaneous disease. There are several causes of flame haemorrhages at the retina, including anaemia, diabetes, leukaemia, sickle cell disease, and macular degeneration. Anaemia has to be very severe, and probably symptomatic, to give this picture. The typical lesions seen are called Roth spots, characterized by a red flame haemorrhage surrounding a white centre.</p>
<p>No.: 2</p> <p>A poorly-controlled 25-year-old diabetic patient with a history of an eating disorder during adolescence presents with sudden, painless reduction of vision of one eye over a matter of minutes. She can just make out faces and shadows from that eye. The most likely diagnosis with that history is :</p> <p>Options</p> <p>A. Detached retina B. Central retinal arterial occlusion C. Vitreous haemorrhage D. Acute glaucoma E. Cataract</p>	<p>No.: 2</p> <p><b>C</b></p> <p>This scenario is, unfortunately, all too common. The key to this diagnosis is SUDDEN (over minutes), PAINLESS, but not TOTAL loss of vision of ONE EYE. D. Acute glaucoma This narrows the diagnosis down to central retinal/arterial occlusions, anterior ischaemic optic neuropathy and vitreous haemorrhage. Arterial occlusion and ischaemic optic neuropathy result in total or subtotal visual loss, where faces certainly cannot be made out. Cataract takes months to years to develop, although it is painless. Acute glaucoma is exquisitely painful to the point of making the patient vomit. Sudden simultaneous bilateral visual loss is very rare and may be due to bilateral posterior circulation stroke.</p>



<p>No.: 3</p> <p>A 38-year-old woman with a history of Raynaud's syndrome presents with dry itchy eyes and a dry mouth. On examination Schirmer's test is positive. Which of the following is the most appropriate therapy :</p> <p>Options</p> <p>A. Hypromellose B. Tropicamide C. Timolol D. Chloramphenicol E. Hydrocortisone</p>	<p>No.: 3</p> <p>A</p> <p>Schirmer's test measures the rate at which a strip of filter paper suspended from the lower eyelid is wetted by tears. Reduced tear production (keratoconjunctivitis sicca) causes ocular discomfort and erosion. Artificial tears are the main treatment.</p>
<p>No.: 4</p> <p>An 18-year-old man presents with conjunctivitis. This has occurred in late spring and summer for the past five years, each time lasting for 6 weeks or more. Which of the following is the most appropriate therapy :</p> <p>Options</p> <p>A. Reassurance and review in 6 weeks B. Hypromellose eyedrops C. Antazoline eyedrops D. Chloramphenicol eyedrops E. Reassurance and fasting blood glucose to exclude diabetes</p>	<p>No.: 4</p> <p>C</p> <p>The man has seasonal allergic conjunctivitis (hayfever) and his symptoms should respond to a topical antihistamine such as antazoline. Often patients have tried over the counter oral antihistamines and discovered that they too can relieve the symptoms.</p>
<p>No.: 5</p> <p>A 30-year-old female presents to the eye clinic with an acute history of pain and blurring in the right eye. Examination reveals a visual acuity of 6/36 in the right eye but 6/6 in the left eye, a central scotoma in the right eye, with a right swollen optic disc .</p> <p>What is the most likely diagnosis :</p> <p>Options</p> <p>A. Compression of the optic nerve B. Cavernous sinus thrombosis C. Glaucoma D. Optic neuritis E. Retinal vein occlusion</p>	<p>No.: 5</p> <p>D</p> <p>The acute presentation with central scotoma, reduced visual acuity and a swollen optic disc in a young female suggests a diagnosis of MS with a retrobulbar neuritis . A retinal vein occlusion would typically produce loss of vision in the affected eye. Glaucoma would not be this acute or unilateral and would be associated with cupping on fundoscopy. Optic nerve compression would usually be painless with complete loss of vision in the affected eye. A cavernous sinus thrombosis would affect the oculomotor nerves (III, IV, VI).</p>



<p>No.: 6</p> <p>A 45-year-old woman with a history of hypertension is found to have a retinal vein occlusion. Which of the following investigations would be of least value :</p> <p>Options</p> <p>A. ESR B. Intraocular pressure measurement C. ANCA D. Echocardiography E. HbA1c</p>	<p>No.: 6</p> <p><b>D</b></p> <p>Retinal vein thrombosis is also associated with hypertension, smoking, thrombophilia, sarcoid, Behcet's, diabetes and hyperviscosity states (polycythaemia, myeloma, Waldenstrom's macroglobulinaemia).</p>
<p>No.: 7</p> <p>A 50-year-old diabetic man is admitted with headache. He had recently been started on antihypertensive treatment by his GP. On examination his blood pressure is 180/110. Fundoscopy shows silver wiring, A-V nipping, a few flame-shaped haemorrhages and cotton wool spots, and a macular star. What is the diagnosis :</p> <p>Options</p> <p>A. Background diabetic retinopathy B. Diabetic maculopathy C. Grade 2 hypertensive retinopathy D. Grade 3 hypertensive retinopathy E. Grade 4 hypertensive retinopathy</p>	<p>No.: 7</p> <p><b>D</b></p> <p>Keith-Wagner classification of hypertensive retinopathy :</p> <p>Grade 1: Mild narrowing or sclerosis of retinal arteries Grade 2: Moderate to marked narrowing or sclerosis with light reflex and A-V crossing changes Grade 3: As above + haemorrhages and cotton wool spots Grade 4: As above + papilloedema</p> <p>Hypertensive damage causes the retinal vessels to leak fluid, protein and lipids which appear as hard exudates and may last for many weeks after the hypertension has been successfully treated. They may form a characteristic star shape around the macula .</p> <p><b>Diabetic retinopathy:</b></p> <p><b>Background:</b> microaneurysms dot or blot haemorrhages hard exudates</p> <p><b>Pre-proliferative:</b> as above + cotton wool spots</p> <p><b>Maculopathy:</b> exudates, haemorrhage, ischaemia or oedema affecting the macula</p> <p><b>Proliferative:</b> As pre-proliferative + new vessel formation</p> <p>Duration of diabetes and glycaemic control (as assayed by HbA1c) determine risk and progression of diabetic retinopathy. Laser treatment is used in maculopathy (focal laser) and proliferative retinopathy (pan-retinal laser). Other eye complications of diabetes include retinal vein thrombosis, glaucoma, cataracts and cranial neuropathies.</p>





<p>No.: 8</p> <p>A 37-year-old man known to be HIV positive presents with blurred vision in one eye. On fundoscopy the retina looks pale in places with patchy haemorrhages. Which is of the following is the most likely diagnosis :</p> <p>Options</p> <p>A. Cytomegalovirus retinitis B. Toxoplasmosis C. Candida ophthalmitis D. Cryptococcal infection E. Syphilis</p>	<p>No.: 8</p> <p>A</p> <p>CMV retinitis is the commonest cause of retinitis in AIDS patients. The appearance of the retina is described as ♦cheese and tomato pizza♦ on account of patchy areas of pale, crumpled looking retina with haemorrhages. Candida ophthalmitis is not associated with haemorrhage. Cryptococcal infection is rare. Syphilis rarely causes obvious retinitis, both iritis and optic neuritis are seen.</p>
<p>No.: 9</p> <p>A 50-year-old man is complains of deteriorating vision. Exposure to which of the following drugs is unlikely to be relevant :</p> <p>Options</p> <p>A. Ethambutol B. Vincristine C. Quinine D. Irinotecan E. Choloquine</p>	<p>No.: 9</p> <p>D</p> <p>A number of drugs can produce visual problems</p> <p>Cataract : Steroids Chlorpromazine Chloroquine Vitamin D Retinopathy : Quinine Vincristine Ethambutol (loss colour vision) Phenothiazines (Bull's eye retinopathy)</p>
<p>No.: 10</p> <p>An 18-year-old man complains of bumping into things on both sides. Fundoscopy shows scattered ♦bone spicule♦ pigmentation in the periphery. Which of the following underlying conditions is least likely :</p> <p>Options</p> <p>A. Usher♦s syndrome B. Abetalipoproteinaemia C. Kearn♦s-Sayre syndrome D. Refsum♦s disease E. Alport♦s syndrome</p>	<p>No.: 10</p> <p>E</p> <p>Alport♦s is associated with lenticonus. The other stems together with Laurence-Moon-Biedl and Hurler♦s are all associated with retinitis pigmentosa.</p>





No.: 11

A 30-year-old man complains of fairly rapid worsening of his central vision. His acuity is normal on pinhole testing. Which of the following cannot account for his symptoms :

Options

- A. Diabetes mellitus
- B. Eye drops
- C. Subluxation of the lens
- D. Keratoconus
- E. Open angle glaucoma

No.: 11

E

The visual defect can be corrected by viewing through a pinhole: this suggests that the problem is refractive and it must therefore be localised to the cornea or the lens .

**Causes of rapid changes in refractive error :**

- Senile cataract (increasingly myopic)
- Diabetes mellitus (high glucose raises refractive index of lens, hence myopic)
- Keratoconus (conical cornea, may occur rapidly in adolescence or early adulthood and causes myopia and astigmatism)
- Subluxation of the lens
- Eye drops (miotics produce myopia, mydriatics - hypermetropia)
- Eyelid swelling

Open angle glaucoma is associated with damage to the ganglion cells of the retina and therefore any visual deficit that is produced by it will not correct with a pinhole.

No.: 12

A 55-year-old woman complains of dry eyes and mouth. Which of the following investigations least relevant :

Options

- A. Schirmer ♦s test
- B. Rheumatoid factor
- C. HLA typing
- D. Anti Ro/La antibodies
- E. Serum ACE

No.: 12

C

Keratoconjunctivitis sicca is caused by the following :

- Sjogren ♦s syndrome (either primary or secondary to rheumatoid arthritis)
- Systemic sclerosis
- Mixed connective tissue disease
- SLE
- Sarcoidosis
- Drugs (anti-cholinergics)

Schirmer ♦s test involves placing standardised strips of filter paper on the lower eyelid margin and measuring the extent of wetting after 5 minutes. Less than 5 mm is definitely abnormal. Rose-Bengal staining of the conjunctiva can also be helpful. Rheumatoid factor usually positive in patients with primary Sjogren ♦s and those with rheumatoid arthritis. Antibodies to extractable nuclear antigens (including anti-Ro and anti-La) and serum ACE level may help differentiate between some of the conditions listed above. The seronegative arthritides are generally not associated with sicca syndrome.



<p>No.: 13</p> <p>A 45-year-old woman presents with a long history of watering of the right eye. Over the preceding 3 days she had developed facial pain and swelling. On examination she is well, afebrile, has a watering right eye, and a red, tense, tender swelling between the side of the nose and just below the right inner canthus. What is the diagnosis :</p> <p>Options</p> <p>A. Acute dacrocystitis B. Orbital cellulitis C. Sinusitis D. Erysipelas E. Epiphora</p>	<p>No.: 13</p> <p><b>A</b></p> <p>The long history of eye watering suggest long-standing obstruction of the nasolacrimal duct. This predisposes to acute infection of the lacrimal sac (acute dacrocystitis) which has the clinical features described above. Epiphora is another name for eye watering .</p> <p><b><u>Other causes of eye watering :</u></b></p> <ul style="list-style-type: none"> <li>-Iritis</li> <li>-Corneal foreign body</li> <li>-Acute glaucoma</li> <li>-Obstruction to the lacrimal passageways (including VIIth nerve palsy)</li> <li>- Chronic eye inflammation</li> </ul>
<p>No.: 14</p> <p>A 45-year-old man presents with a unilateral painful red eye associated with blurred vision, photophobia and watering. On examination there are keratitic precipitates and pupillary irregularity. Which of the following are not relevant :</p> <p>Options</p> <p>A. Genital ulceration B. Recent history of injury to the other eye C. HLA type D. Presence of rheumatoid factor E. Recurrent middle ear infections</p>	<p>No.: 14</p> <p><b>E</b></p> <p>The features suggest anterior uveitis. Other features on anterior uveitis include ciliary vessel hyperaemia, protein and inflammatory cells in the anterior chamber (hypopyon), posterior synechia (tethering of the iris to the lens as a result of inflammation), and eye swelling .</p> <p><b><u>Causes :</u></b></p> <ul style="list-style-type: none"> <li>• Still's disease</li> <li>• Reiter's syndrome</li> <li>• Ankylosing spondylitis</li> <li>• Behcet's disease</li> <li>• Sarcoidosis</li> <li>• Tuberculosis</li> <li>• Leprosy</li> <li>• Syphilis</li> <li>• Sympathetic uveitis</li> </ul>

No.: 15



This 50-year-old man presents with severe headache and vomiting. What is the diagnosis :

Options

- A. Subarachnoid haemorrhage
- B. Acute iritis
- C. Raised intracranial pressure
- D. Caroticocavernous fistula
- E. Acute glaucoma

No.: 15

E

The eye appears to have an ovoid pupil with a smoky cornea. This appearance is strongly suggestive of acute, closed angle glaucoma. The intra-ocular pressure would typically be elevated to 40-50 mmHg. Visual acuity may deteriorate rapidly .

The other stems would, generally, not give an irregular pupil with these corneal appearances.

No.: 16



What is the diagnosis :

Options

- A. Rheumatoid arthritis
- B. Vasculitis
- C. Pterygium
- D. Alkaptonuria
- E. Herpes keratitis

No.: 16

A

These appearances are in keeping with episcleritis. Note that the iris is not involved. This is found, almost exclusively, in rheumatoid arthritis. Herpes keratitis is usually more superficial. A pterygium comes from the angle of the eye.





No.: 17



Which is the least likely diagnosis :

Options

- A. Sickle cell disease
- B. Paget's disease
- C. Ehler's-Danlos
- D. Hypophosphatasia
- E. Psedoxanthoma elasticum

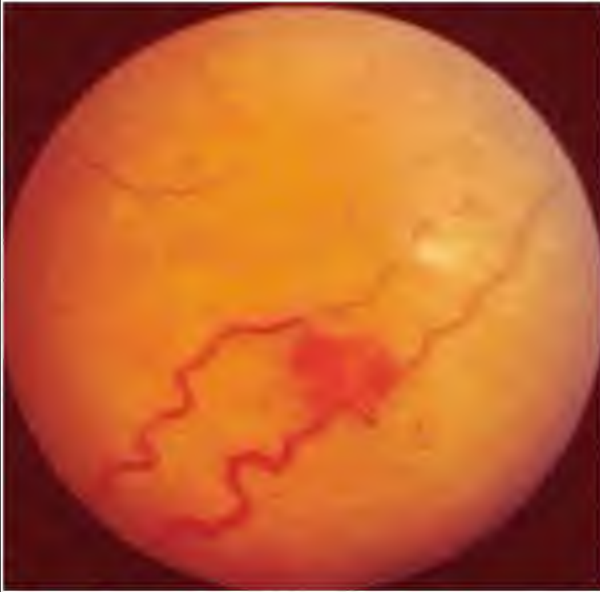
No.: 17

D

The poorly defined, greyish streaks are typical of angioid streaks. These may be found in pseudoxanthoma elasticum, Paget's, Sickle cell, and Ehler's Danlos.



No.: 18



This man has haematuria. What is the likely diagnosis?

Options

- A. Von Hippel-Lindau
- B. Myeloma
- C. Auto-immune hepatitis
- D. Sickle cell disease
- E. Neurofibromatosis

No.: 18

D

There is a large haemorrhage visible on the retina as well as congested vessels. This implies microangiopathic disease. In association with haematuria, would imply that Sickle Cell disease is the most likely cause. Multiple myeloma may produce retinal infarctions, but would be a less likely cause of haematuria.



No.: 19



What is this?

Options

- A. Treated DM retinopathy
- B. CMV retinitis
- C. Toxoplasmosis
- D. Candida endophthalmitis
- E. Macular degeneration

No.: 19

A

These are the appearances of severe treated diabetic retinopathy. The scars are the result of laser burns in order to prevent the complications of proliferative retinopathy arising .

CMV retinitis and toxoplasmosis have a more irregular and poorly defined look. Macular degeneration is confined to the macula.



No.: 20



Opthalmological examination was performed on this young man with a family history of a multisystem disorder. Which of the following is the most likely diagnosis ?

Options

- A. Homocysteinuria
- B. Marfan's syndrome
- C. Wilson's disease
- D. Reiter's syndrome
- E. Galactosaemia

No.: 20

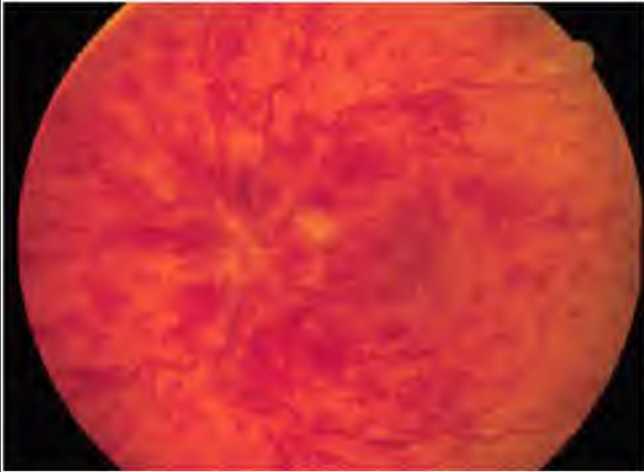
A

Homocysteinuria produces inferior subluxation of the lens as depicted here. Marfan's is associated with dislocation upwards. These are the two principle causes of lens subluxation, apart from trauma. A useful way of remembering which way the lens moves, is to think of the Marfanoid habitus (tall!) and recall that the lens heads upwards.





No.: 21



This man complains of loss of vision in one eye. Which of the following diagnosis merits the least consideration :

Options

- A. Myeloma
- B. Hypertension
- C. DM
- D. Behcet's disease
- E. Ankylosing spondylitis

No.: 21

E

This appearance is consistent with a central retinal vein occlusion producing widespread retinal haemorrhages . The causes are those which may predispose to venous infarction (myeloma, Behcet's, Leukaemia, Sickle Cell), external compression, general inflammatory conditions and vascular disease (hypertension, DM, hypercholesterolaemia) .

Ankylosing Spondylitis typically produces iridocyclitis as it's ocular manifestation.

No.: 22



What is the abnormality here?

Options

- A. Holmes-Adie syndrome
- B. Congenital Horner's
- C. Acquired Horner's
- D. Chronic iritis
- E. Treated acute glaucoma

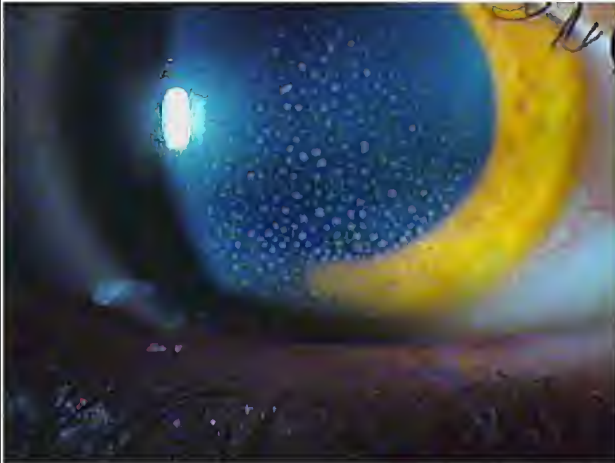
No.: 22

A

There is clearly anisocoria (pupillary asymmetry), with the pupils in light. The left pupil is dilated with no evidence of a ptosis in the contralateral eye. This would make a Horner's syndrome unlikely. There is no evidence of an iritis, chronic or otherwise. The treatment of acute glaucoma involves the protection of both eyes, therefore unilateral signs would be unlikely .

Holmes-Adie pupils are unilaterally dilated and are sluggishly responsive to light. They are most common in young women and may be associated with diminished reflexes.

No.: 23



This lady complains of pain and blurred vision in her eye. What is the diagnosis :

Options

- A. Herpes keratitis
- B. Acute glaucoma
- C. Corneal abrasion
- D. Iritis
- E. Ectopia lentis

No.: 23

D

These tiny white dots are keratic precipitates. They are seen in inflammation of the iris (also known as iridocyclitis). This occurs in chronic bowel disease, sero negative arthropathies and trauma.



No.: 24



A middle aged man presents with headache. What is the diagnosis?

Options

- A. Optic neuritis
- B. Candida endophthalmitis
- C. Myelinated nerve fibres
- D. Drusen
- E. Optic glioma

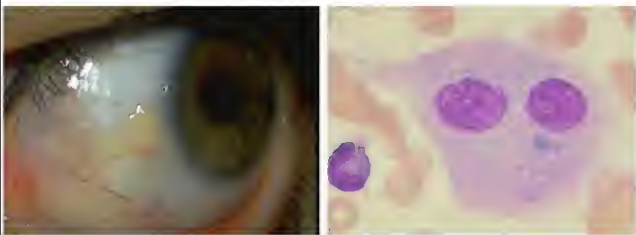
No.: 24

C

These appearances are those of myelinated nerve fibres - this is an incidental finding and probably has nothing to do with the patient's headache .

An optic glioma is more discrete, drusen are multiple lesions, candidal endophthalmitis is more irregularly distributed. Optic neuritis produce localised inflammation.

No.: 25



These two slides are from the same patient. What is the diagnosis :

Options

- A. Neurofibromatosis
- B. Tuberose sclerosis
- C. Sarcoidosis
- D. Wegener's granulomatosis
- E. Gaucher's disease

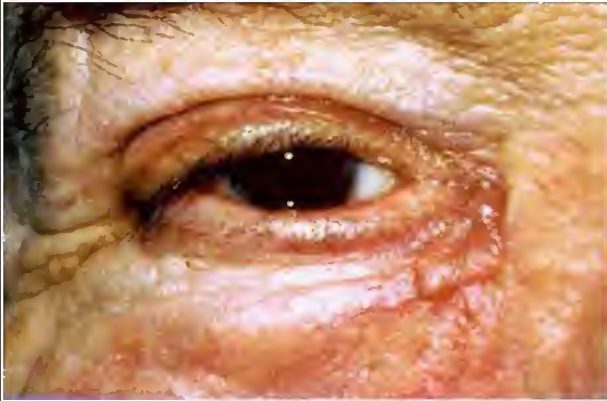
No.: 25

E

Discoloured pingeculae are seen in Gaucher's disease which is a multi-system storage disorder. None of the other options presented will give this appearance.



No.: 26



What is this?

Options

- A. Molluscum contagiosum
- B. Basal cell carcinoma
- C. Sarcoidosis
- D. Squamous cell carcinoma
- E. Chalazion

No.: 26

B

This lesion on the lower lid has a raised, rolled, pearly border. This is a basal cell carcinoma which often localises to the eyelids .

Papillomata also tend to occur on or around the eyelids, but they do not have this typical appearance.

No.: 27



What is the diagnosis?

Options

- A. Proliferative DM retinopathy
- B. Grade 3 hypertensive retinopathy
- C. Endocarditis
- D. CMV retinitis
- E. Background retinopathy

No.: 27

B

This slide demonstrates retinal blot haemorrhages and exudates. This appearance would do for hypertensive or diabetic retinopathy. The absence of new blood vessels is against a proliferative retinopathy. Endocarditis would tend to produce more discrete white balls on fundoscopy. The haemorrhages and exudates look too well defined for this to be CMV retinitis. The absence of microaneurysms is against a diagnosis of background retinopathy.





<p>No.: 28</p> <p>A 59-year-old Jamaican Barman has had type 2 diabetes for 10 years. He is seen at the diabetic follow up clinic yearly. He has his fundi examined at these visits .</p> <p>Which of the following features would require urgent referral to an ophthalmologist :</p> <p>Options</p> <p>A. Hard exudates B. Microaneurysms C. Blot haemorrhages D. Cotton wool spots E. Dot Haemorrhages</p>	<p>No.: 28</p> <p><b>D</b></p> <p><b>Diabetic Retinopathy</b></p> <p><b>Background</b> ♦ Microaneurysms, dot and blot haemorrhages, hard exudates</p> <p><b>Diabetic Maculopathy</b> ♦ Hard exudates or oedema in the region of the fundus</p> <p><b>Pre-proliferative</b> ♦ Cotton wool spots, venous and arteriolar changes in vessels, large haemorrhages</p> <p><b>Proliferative</b> ♦ Neovascularisation</p> <p>Pre-proliferative retinopathy requires urgent ophthalmological assessment for early signs of proliferative retinopathy. Proliferative retinopathy should be treated with laser therapy to preserve sight .</p> <p>%40of type 1 diabetics have retinopathy</p> <p>20% of type 2 diabetics have retinopathy</p>
<p>No.: 29</p> <p>A 72-year-old retired landscape gardener presents at casualty complaining of a severe headache of acute onset. He has also found it difficult to see out of his left eye. On examination, he is afebrile, pulse is 80 bpm, BP 145/93. His left pupil is oval in shape and does not react to light or accommodation. Visual acuity is limited to finger counting on the left. It is normal on the right. You request an urgent ophthalmology opinion .</p> <p>What should you do while waiting for her arrival :</p> <p>Options</p> <p>A. Administer IV mannitol B. Apply local pressure to the eyeball C. Administer pilocarpine drops to the eye D. Give oral betablockers E. Give atropine intravenously</p>	<p>No.: 29</p> <p><b>C</b></p> <p>This presentation is of acute closed angle glaucoma. There may well also be cupping of the optic disc on fundoscopy. Sight loss may be permanent and the condition may require surgical intervention. Therefore, appropriate referral is required. Of the management options presented, the administration of pilocarpine drops is the most appropriate step, as this may open the angle, allowing drainage to occur. It is not a definitive management step, however. Pressure on the eyeball would reveal it to be very hard. While this may be useful in diagnosis, it would not be in management. Oral betablockers would not work in time, local administration would be a more appropriate step. While IV mannitol is used in extreme cases, it is not first line management. The administration of intra venous atropine is potentially fatal, and has no place in the management of this condition.</p>



<p>No.: 30</p> <p>A 44-year-old woman has developed acute conjunctivitis. Which of the following does not cause follicular conjunctivitis and is, therefore, the least likely cause :</p> <p>Options</p> <p>A. Trachoma B. Prolonged use of pilocarpine C. Herpetic conjunctivitis D. Phlyctenular keratoconjunctivitis E. Superficial Trauma</p>	<p>No.: 30</p> <p><b>D</b></p> <p>Trachoma is associated with follicles on upper Tarsal conjunctiva and sometimes on bulbar conjunctiva as well which is pathogomonic for Trachoma . Prolonged drug usage like pilocarpine, IDU causes irritative follicular conjunctival response Herpetic conjunctivitis is associated with vesicular lesion of face and is therefore included in follicular conjunctivitis Phlyctenular keratoconjunctivitis is associated with nodular affection occurring as an allergic response to various allergens causing phlyecten formation, which can involve either conjunctiva or cornea or both.</p>
<p>No.: 31</p> <p>A 56-year-old man complains of a new onset headache of a few hours duration. The pain is described as severe and localises to the left orbit. He says he is seeing circles of light through the left eye .</p> <p>On examination, he looks unwell, and is vomiting. There is no neck stiffness, and he is afebrile. His left eye looks red, and the pupil is sluggishly reactive, appearing smaller than the one on the right (mid-dilated position). There are no other abnormalities to detect .</p> <p>Which measures are not indicated in the management of this patient?</p> <p>Options Choose 2</p> <p>A. Mannitol B. Referral to ophthalmologists C. Topical cocaine D. Cyclizine E. Morphine F. Pilocarpine eye drops G. Timolol eye drops H. Sumatriptan I. Acetazolamide</p>	<p>No.: 31</p> <p><b>C H</b></p> <p>The management of acute (closed angle) glaucoma is an emergency as sight loss may be prevented .</p> <p>In the first instance pilocarpine drops, which constrict the pupil, are given. These help to open out the angle and assist the drainage of aqueous. A beta blocker may act to reduce aqueous production, therefore this is given subsequently .</p> <p>Analgesia is needed; morphine has the added effect of miosis .</p> <p>Acetazolamide reduces the intraocular pressure orally or IV .</p> <p>In extreme cases mannitol can be used .</p> <p>Topical cocaine would dilate the pupil and close the angle .</p> <p>Sumatriptan is used in the treatment of migraine and cluster headache.</p>



<p>No.: 32</p> <p>A 22-year-old woman attends her GP because she is unable to see out of one eye. This came on acutely while she was paying for petrol at a garage. She has been generally well prior to this, and reports no systemic disturbance. Her whole field of vision is affected. Vision in the other eye is normal .</p> <p>Which of the following features would least support a diagnosis of optic neuritis?</p> <p>Options</p> <p>A. Delayed visual evoked potentials B. Loss of colour vision C. Gradual progression over the following 6 months D. Associated pain in the affected eye E. Complete recovery in 2 weeks</p>	<p>No.: 32</p> <p><b>C</b></p> <p>Optic neuritis is the presenting sign in a quarter of cases of multiple sclerosis (MS) .</p> <p>The visual acuity typically declines quickly. Colour vision is affected early. A range of different field effects has been observed, and the inflammation may affect both optic nerves .</p> <p>Typically symptoms resolve in 2 weeks. The diagnosis of MS cannot be made at this point, as, by definition, there need to be 2 episodes separated in time. If, however, there are multiple white matter lesions on MRI scanning and the CSF oligoclonal bands are elevated, it makes the diagnosis fairly unavoidable .</p> <p>Very often fundoscopy is normal. There may be temporal pallor or sometimes, retinal haemorrhages where a plaque is behind the retina.</p>
<p>No.: 33</p> <p>A 22-year-old man is concerned about double vision. This has come on over 2 days and is present all the time. There is no history of headache or systemic disturbance .</p> <p>On examination of his eye movements, there is a limitation in abduction of the left eye. Pupil reactions are otherwise normal .</p> <p>Which 2 investigations are least likely to be of diagnostic value?</p> <p>Options Choose 2</p> <p>A. CT brain B. Angiography of posterior circulation C. Collaborative alcohol history D. Tensilon test E. MRI of the brainstem F. Lumbar puncture (after excluding raised ICP) G. Formal ENT examination H. CT scan of the sinuses I. Serum ACE</p>	<p>No.: 33</p> <p><b>BI</b></p> <p>Apparent sixth nerve palsy may be due to :</p> <ul style="list-style-type: none"> <li>*Guillain-Barre (Miller Fisher variant), therefore LP is indicated</li> <li>*Myasthenia gravis, tensilon test</li> <li>*Wernicke's, look for evidence of alcohol</li> </ul> <p>A pure 6th can be a false localising sign due to raised intracranial pressure (CT) or a brainstem lesion (tumour) .</p> <p>Nasopharyngeal lesions can affect the 6th nerve, alone, so sinus examination and ENT referral are important where a cause is difficult to pin point .</p> <p>Rare causes of mononeuritis multiplex are possible. HIV is more likely than sarcoid in such a patient. Furthermore, a normal or elevated level of ACE is not diagnostic of sarcoid, whereas a HIV test is fairly conclusive .</p> <p>Posterior circulation aneurysms cause 3rd nerve palsies.</p>



No.: 34



A 32-year-old homeless man is found on the street, he is being observed in casualty when one of the nurses notices that he has become increasingly unwell. Having been assessed by the casualty staff, a diagnosis of acute pancreatitis is made, and he is admitted to be managed by the surgical team .

Two days into his admission he is making a reasonable recovery, when the surgical house officer contacts you because his vision has changed. You see him on the ward .

He has a long history of alcoholism and was diagnosed 2 years beforehand with chronic lymphocytic leukaemia; this is currently stable .

On examination, he is unkempt, with mild jaundice. There is a visual defect in the right lower nasal quadrant. Neurological examination is otherwise normal, apart from a fine resting tremor. Fundoscopy is performed .

What is the diagnosis?

Options

- A. Branch retinal vein occlusion
- B. Branch retinal artery occlusion
- C. Hypertensive retinopathy
- D. Diabetic retinopathy
- E. Tobacco-alcohol amblyopia

No.: 34

A

The flame shaped haemorrhage confined to one quadrant suggests a branch retinal vein occlusion .

This can occur with :

- (1) Compression of the vein
- (2) Hypertension
- (3) Glaucoma
- (4) Hyperviscosity of blood (macroglubulinaemia, leukaemia, polycythaemia)

Treatment is of the underlying cause followed by local photocoagulation if appropriate (neovascularisation).





No.: 35

A 43-year-old hypertensive fireman has longstanding diabetes. He attends a diabetic clinic yearly where his blood sugars are checked; neurological examination and fundoscopy are performed. On this occasion, he says that he has noticed that his vision is not as good as it was .

Which are the features of diabetic retinopathy seen on fundoscopy (see picture)?



Options Choose 2

- A. Proliferation around macula
- B. Blot haemorrhages
- C. Change in vessel in tortuosity
- D. Nipping of vessels
- E. Hard exudates
- F. Optic atrophy
- G. Myelinated nerve fibres
- H. Macular star
- I. Neovascularisation
- J. Retinal vein obstruction

No.: 35

B E

This is pre-proliferative diabetic retinopathy. Note the photocoagulation scars temporally. There are also hard exudate, dot and blot haemorrhages .

Some silver wiring and av nipping is also visible in an inferior artery .

Background: microaneurysms, blot haemorrhages and hard exudates .

Macula oedema: hard exudates around the macula .

Proliferative: flame haemorrhages, cotton wool spots and leashes of new vessels .

Hypertensive retinopathy :

I - Arteriolar attenuation

II - AV nipping - due to focal arteriolar attenuation

III - Cotton wool spots (due to focal ischaemia), haemorrhages

IV - Disc swelling

Grade IV hypertensive retinopathy implies malignant hypertension and is, therefore, a medical emergency.



No.: 36

A 68-year-old man is referred for assessment by the ophthalmologists. About 8 months ago, he developed painful visual loss in his right eye while he was on holiday. He was given high dose steroids and his vision returned to normal within a few days. Since this initial episode he has 5 further episodes of acute visual loss, always in the right eye. These have not always been associated with pain. On each occasion, the problem resolved relatively rapidly following the administration of steroids .

Now, his visual acuity on the right is 6/18, 6/9 on the right. Ishihara charts demonstrate that he has loss of colour vision in the right eye. Formal field-testing shows that he has a large central scotoma that extends to the blind spot. Fundoscopy shows a pale disc but little else. Examination is otherwise normal .

What is the most likely diagnosis?

Options Choose 1

- A. Multiple sclerosis
- B. Mitochondrial disease
- C. A retro-orbital lesion
- D. Lymphoma of the optic nerve
- E. Retinoblastoma
- F. Retinitis pigmentosa
- G. Toxic optic neuropathy
- H. Anterior ischaemic optic neuritis
- I. Chronic inflammatory demyelinating polyneuropathy

No.: 36

D

There is recurrent visual loss, which is highly steroid responsive. This would make ischaemic disease or a retinitis pigmentosa very unlikely. The pattern of visual loss is predominantly central, so the pathology is almost certainly within the optic nerve .

Multiple sclerosis would be highly unusual to present in this age group, and to confine its effects to one optic nerve .

Retinoblastoma is a tumour of the retina, which occurs in early childhood .

Mitochondrial diseases tend to affect the retina, and are usually bilateral .

Anterior ischaemic optic neuropathy is unlikely to be steroid responsive .

A toxic optic neuropathy is highly unlikely to affect one optic nerve, and there is no history of appropriate toxin exposure .

Chronic inflammatory demyelinating polyneuropathy is a disease of the peripheral nerves .

The diagnosis could be made on the basis of an MRI scan of the optic nerves, which would show unilateral abnormalities. Unfortunately, this is usually a post mortem diagnosis.

No.: 37



A 46-year-old labourer has noticed a change in the vision of his left eye. He also thinks that the appearance of the eye has changed over the last few months. He has no other symptoms, and is generally fit and well .

What is the most likely cause of this lesion?

Options

- A. Metastatic spread of carcinoma
- B. Atypical infection of the cornea
- C. Anterior uveitis
- D. Trauma to the eye
- E. Ultra-violet light damage

No.: 37

E

This abnormality is a pterygium. This is a superficial band of fibrous tissue that forms across the cornea from the nasal side of the eye. It is generally benign and causes no ill effects until it impinges upon the pupil .

The cause is thought to be related to sun damage of the eye, and the condition is more common in countries with greater daily amounts of sunshine .

Management is by resection of the lesion, recurrence is common, however, and repeated procedures may be required.





No.: 38

A 43-year-old woman is referred for assessment because her GP noticed, on a routine visit, that her pupils appeared to be unequal. She is generally well, but has had one or two headaches over the past 3 months. She also feels that her job as a receptionist in a busy hotel has become more stressful of late .

On examination, her left pupil appears smaller than the pupil on the right. Both pupils are equally reactive to accommodation and light, however .

What is the most likely cause of the left pupil abnormality?

Options Choose 1

- A. Left third nerve palsy
- B. A left Holmes-Adie pupil
- C. Use of mydriatic drops in the left eye
- D. Optic neuritis of the left optic nerve
- E. Left Argyll-Robertson pupil
- F. Chronic glaucoma
- G. Left Horner's syndrome
- H. Left anterior uveitis

No.: 38

G

This lady has a small pupil, which reacts normally to light and accommodation .



Holmes-Adie pupils are typically large and react only sluggishly to light and accommodation .


Argyll-Robertson pupils are small and irregular and react to accommodation, but not light .

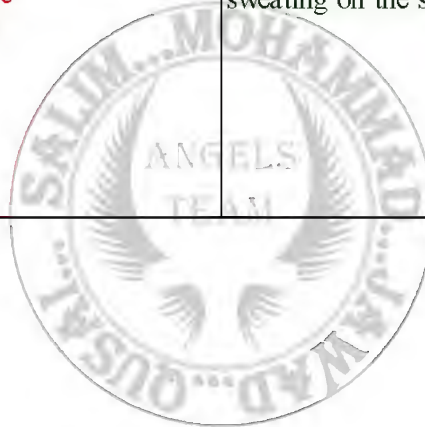
A lesion of the optic nerve would produce an afferent pupillary defect and, therefore, an absent light response .

Anterior chamber disease and glaucoma can produce pupil abnormalities, but these lead to a loss of all reactions due to physical disruption to the contractile mechanisms .

Mydriatic eye drops make a pupil larger .

3rd nerve palsy results in an eye being deviated  down and out  with pupil dilation occurring .

Horner  s can be associated with ptosis and absence of sweating on the same side.





No.: 39



A 17-year-old Kurdish asylum seeker has had some ocular discomfort, and complains of blurring of vision in both eyes. He arrived in this country 2 weeks beforehand. He has no past medical history, although he was subject to electric shock torture and regular beatings during a recent spell of detention .

On examination, his visual acuity is 6/6 in both eyes. Fundoscopy is normal bilaterally. His eyelid appears abnormal, however .

What is the management of this condition?

Options

- A. Topical steroids
- B. Artificial tears
- C. Topical tetracycline
- D. Corneal grafting
- E. Topical acyclovir

No.: 39

C

This is the appearance of trachoma .

Chlamydia trachomatis affects some 400 million people worldwide. The bacteria are spread by flies seeking moisture. The bacterium grows in epithelial cells, causing an inflammatory reaction in the cornea and the conjunctiva .

Lymphoid follicles on the tarsal plate are one of the earliest signs. Localised inflammation causes scarring, which is why the vision is affected. This process is exacerbated by the eyelashes turning inward (trichiasis) .

The treatment of individual cases is by either topical tetracycline or by a course of a sulphonamide (beware Stevens Johnson syndrome). Surgical treatment may be indicated in advanced cases. Community treatment is of great importance, and the results of regular face washing, a supply of clean water and decent toilets are dramatic. Trachoma was a major public health problem in Europe prior to piped water and sewage facilities.

No.: 40

A 59-year-old man is referred complaining of an acute headache. This came on over ten minutes and was associated with nausea, vomiting, neck stiffness and photophobia. He has never had this type of episode before. He is generally well and doesn't drink or smoke.

Examination shows a pulse of 110 bpm and a BP of 150/100. His left eye appears abnormal.

What is the most appropriate first management step?



Options Choose 1

- A. Perform lumbar puncture
- B. Arrange MRI of the brain
- C. Arrange CT scan of the orbits
- D. Administer pilocarpine drops to both eyes
- E. Administer IV antibiotics
- F. Administer topical antibiotics
- G. Arrange an ophthalmology OPA
- H. Blood cultures
- I. Use cocaine as a topical analgesic

No.: 40

D

This eye has an oval cloudy pupil in association with an injected sclera is strongly suggestive of acute (closed angle) glaucoma. This condition is commoner with age and it is suggested that it is associated with hypermetropia. Over the course of an hour or so, the angle between the iris and ciliary body closes, and intra-ocular pressure rises to over 50mmHg.

Symptoms include local pain, headache, visual disturbances and nausea. Visual acuity is almost always reduced.

Appropriate management :

- \*Analgesia (not local)
- \*Pilocarpine followed by timolol drops (open out angle)
- \*Urgent ophthalmology referral
- \*Acetazolamide
- \*Mannitol
- \*Operative intervention

It is important to consider both eyes, as the predisposing factors will be present bilaterally.

No.: 41

A 24-year-old man has been having some difficulty with his vision. He works as a printer, and had noticed, around 2 months ago, that he was having difficulty in distinguishing colours. This progressed, and he was subsequently involved in a car crash, because he didn't see a car pulling out in front of him. He is otherwise generally well, and has noticed no other symptoms. He drinks around 20 pints of lager a week, and smokes 15 cigarettes a day. His mother reportedly has eye problems, which came on in her 20s. She is now registered blind. His father is well. On examination, his visual acuity is 18/60 in both eyes. Fundoscopy is shown.

What is the diagnosis?



Options Choose 1

- A. Tobacco alcohol amblyopia
- B. Multiple sclerosis
- C. Pituitary adenoma
- D. Diabetic retinopathy
- E. Leber's hereditary optic neuropathy (LHON)
- F. Kearns-Sayre syndrome
- G. CMV retinitis
- H. Hypertensive retinopathy
- I. Benign intracranial hypertension

No.: 41

E

LHON is a mitochondrial disease, due to a mutation of the mitochondrial DNA. Mitochondrial diseases are only transmitted through the maternal line, as no mtDNA is inherited from the father (it is lost in the motor unit of the sperm tail). Typically the onset is in the 20s with progressive loss of vision in both eyes. Field-testing will reveal a central scotoma, and colour vision will be affected.

The main differentials for this presentation would be multiple sclerosis (optic neuropathy) and tobacco-alcohol amblyopia. The progressive history is against MS, however, and the quantities of alcohol and cigarettes tend to cause retinal problems in association with nutritional deficiencies.

The main examination findings are increased vascularity around the optic discs. There may be associated cardiac abnormalities in patients with this condition. Wolff-Parkinson-White syndrome is reported as an association. Muscle biopsy may reveal red ragged fibres.

Kearns-Sayre syndrome (KSS) is a mitochondrial disorder, but affects eye movements rather than acuity. Retinitis pigmentosa may occur in KSS.



No.: 42

A 76-year-old man is seen in diabetic clinic. He has had type 2 diabetes for 20 years. He had a myocardial infarction 4 years beforehand, and gave up smoking at that time. His glycaemic control is reasonable, with random blood glucoses of 6-9. He has had no major complications from the diabetes. Currently he is taking glibenclamide and a beta-blocker (for hypertension) .

He reports that 10 days before the clinic, he was suddenly unable to see objects clearly on his right. There was no associated headache or systemic symptoms, and the visual disturbance has not progressed since its onset .

On examination, there is a right upper temporal quadrantanopia, only in the right eye. Acuity is unchanged from a previous visit, and colour vision is normal. Fundoscopy is shown .

What is the most likely cause for the visual abnormality?



Options Choose 1





- A. Temporal arteritis
- B. Retinal haemorrhage
- C. Left temporal lobe infarct
- D. Left parietal lobe infarct
- E. Right temporal lobe infarct
- F. Right parietal lobe infarct
- G. Anterior ischaemic optic neuropathy
- H. Central retinal vein occlusion

No.: 42

G

Acute loss of part of a visual field in one eye is strongly suggestive of an acute retinal problem. Any central problem tends to affect the fields in both eyes .

Acute visual loss :

- \*Central visual artery occlusion - complete loss of vision in one eye pale retina with  cherry red  spot
- \*Branch retinal artery occlusion - Loss of a discrete area with pallor and oedema of the affected area
- \*Retinal vein occlusion, may be branch or central will produce dramatic flame haemorrhages in the distribution of the occlusion
- \*Temporal arteritis - associated headache and systemic symptoms, both eyes are usually affected throughout the field .
- \*Papilloedema - should be obvious from examination
- \*Optic neuritis - painful, central scotoma, colour vision affected as an early sign
- \*Glaucoma - pain, red eye
- \*Vitreous haemorrhage -  black  appearance on fundoscopy
- \* Anterior ischaemic optic neuropathy - due to diabetes and hypertension, arteritis of ciliary arteries, fundus usually normal.





No.: 43

A 56-year-old Afro-Caribbean woman has had hypertension for many years, which is reasonably well controlled. She has recently returned from holiday, where she forgot to take her medication. She has been having intermittent fevers and leg swelling. She presents in casualty. Apart from a blood pressure of 210/190, there are no abnormalities to detect on general examination. Her bloods and chest X-ray are also normal. The casualty officer performs fundoscopy, and contacts you because he is concerned about what he sees.

Which of the following features would indicate a probable requirement for admission to hospital?

Options

- A. Cotton wool spots
- B. Haemorrhages
- C. Arteriolar attenuation
- D. Optic disc swelling
- E. Venous beading

No.: 43

D

Grading hypertensive retinopathy :

I - Arteriolar attenuation

II - AV nipping - due to focal arteriolar attenuation

III - Cotton wool spots (due to focal ischaemia), haemorrhages

IV - Disc swelling

Grade IV hypertensive retinopathy implies malignant hypertension and is, therefore, a medical emergency.



No.: 44



A 16-year-old man complains of worsening vision in the evening. He is generally well, with no significant past medical history. His parents are separated and his mother has no visual problems. He is no longer in contact with his father.

On examination, he has loss of peripheral vision bilaterally, with normal colour vision. Fundoscopy is shown.

Which of the following is not commonly associated with this feature?

Options

- A. Abetalipoproteinaemia
- B. Kearns-Sayre syndrome
- C. Homocystinuria
- D. Usher's disease
- E. Refsum's disease

No.: 44

C

Homocystinuria is associated with lens dislocation (down) c/w Marfan's (up).

Abetalipoproteinaemia - AR, acanthocytosis, areflexia, tics.

Kearns-Sayre syndrome - mitochondrial disease, ophthalmoplegia (inc. ptosis) heart rhythm disturbances.

Usher's syndrome - AR, association of deafness with RP.

Refsum's disease - AR, storage disorder, associated peripheral neuropathy and deafness.

Batten's disease and Lawrence Moon Biedl syndrome are other associations. AD forms tend to be less severe.

No.: 45

A 35-year-old woman has had intermittent pains in the right eye for the last two weeks. These have been becoming progressively more severe, and are associated with intermittent visual disturbance in the eye. They are not related to any time of the day or postural change .

On examination, visual acuity is down to 6/36 in the affected eye. The left eye is entirely normal on examination, including fundoscopy. Fundoscopy of the right eye is shown .

Of the following, which 2 options are the most likely possible causes?



Options Choose 2

- A. Accelerated phase hypertension
- B. Central retinal vein occlusion
- C. Optic nerve glioma
- D. Benign intracranial hypertension
- E. Orbital lymphoma
- F. Acute glaucoma
- G. Optic neuritis
- H. CMV retinitis
- I. B12 deficiency
- J. Thiamine deficiency

No.: 45

C E

The appearances are of swelling of the head of the optic nerve. The abnormalities are unilateral which would make hypertension an unlikely cause .

Central retinal vein occlusion is possible, but there would usually be associated haemorrhages .

B12 and thiamine deficiencies can both produce abnormal appearances of the head of the optic nerve, but these would also usually be bilateral .

Optic neuritis may produce a similar appearance, acutely, but this would be unusual and far less likely than unilateral optic nerve or retro-orbital lesions. The nerve head is usually paler with neuritis .

Glaucoma tends to produce cupping of the optic disc rather than swelling, this is because of the increased intra-ocular pressure.



No.: 46

A cardiologist consults you for advice. One of his patients, a 56-year-old man, has recently been seen at the opticians for a routine eye test for spectacles. The man was informed that he had difficulty with his colour vision. He is being treated for chronic atrial fibrillation and congestive cardiac failure secondary to mitral stenosis. He is being considered for operative intervention for his valve abnormality.

Apparently, there is no family history of colour vision abnormalities and he had an eye test done 2 years ago, which was entirely normal. He is on a number of different medications for his heart disease.

Which is the most likely causative drug for his visual problems?

Options

- A. Lisinopril
- B. Atenolol
- C. Bendrofluazide
- D. Digoxin
- E. Spironolactone

No.: 46

D

The loss of colour vision, which is slowly progressive in an individual with previously normal vision, is strongly suggestive of optic neuropathy. Colour vision can often be the first manifestation, with general acuity declining later in the disease process. Fundoscopy may show some pallor of the disc or may be entirely normal. Field-testing may also be normal, as the abnormalities pertain to the optic nerve rather than the retina. The rare congenital condition of cone dystrophy may produce a similar picture in a younger patient.

Iatrogenic optic neuropathy :

- \*Digoxin
- \*Chlorpropamide
- \*Isoniazid
- \*Chloramphenicol
- \*Ethambutol
- \*Nutritional optic neuropathy
- \*Tobacco-Alcohol amblyopia (where visual loss may occur independently of nutritional intake)
- \*B12 deficiency
- \*Folic acid deficiency
- \*Niacin deficiency

No.: 47



No.: 47

B







No.: 48

You are asked to review a 16-year-old Caucasian girl in casualty. She has been unwell for several days, complaining of feeling tired and having intermittent fevers and chills. Suddenly, 30 min before her admission to hospital, she lost all vision in her right eye .

There is no past history of note and she does not take any regular medication. There is no significant history of foreign travel. She lives with her parents and two sisters who are all well. She is doing well at school academically, though her mother describes her as a worrier. The family have a pet cat. At weekends she works at a local pharmacy to earn extra pocket money .

On examination she appears pale and unwell. Vital signs are: temperature 39.0 °C; pulse rate is 130 per minute, regular; blood pressure 95/55, respiratory rate is 22 per minute. A pansystolic murmur is audible at the apex and lower left sternal border. Both lungs are clear. The left pupil reacts normally to light; there is no reaction from the right pupil, which remains fixed and dilated. There is a complete loss of vision in the right eye. The right fundus appears paler than the left; there is no papilloedema. The only additional finding on examination was a paronychia on her right thumb; light pressure on the nail bed was very uncomfortable .

Investigations reveal :

Hb 10.8 g/dl

WBC 15.1 x 10<sup>9</sup>/l

Neutrophils 10.0 x 10<sup>9</sup>/l

Lymphocytes 4.8 x 10<sup>9</sup>/l

Monocytes 0.29 x 10<sup>9</sup>/l

Eosinophils 0.01 x 10<sup>9</sup>/l

Platelets 500 x 10<sup>9</sup>/l

What are the two most important investigations in determining the cause of her illness?

Options Choose 2

A. Blood cultures

B. Bone scan

C. Cerebral angiogram

D. CT head

E. C-reactive protein

F. Chest X-ray

G. ESR

H. MRI head with gadolinium contrast

I. Transthoracic echocardiogram

J. X-ray hand

No.: 48

A I

The most likely underlying diagnosis is infective endocarditis (even though it is unusual in this age group. She has infarcted her right optic nerve secondary to an embolic event.



No.: 49

A 24-year-old man presented with a painless visual loss of his left eye over 24 h. Over the previous 2 weeks he had lost the vision in his right eye. He denied any other symptoms .

His previous medical history was unremarkable. He smoked 10 cigarettes per day and drank 20 units of alcohol per week. There was no relevant family history. He did not take any drugs .

Physical examination was unremarkable. His visual acuity was 6/60 on the right and finger counting on the left. His colour vision was impaired in both eyes. Fundoscopy revealed bilateral optic atrophy. The remainder of his neurological examination was normal .

Investigations showed :

Full blood count Normal  
 Serum urea & electrolytes Normal  
 Liver function tests Normal  
 Thyroid function tests Normal  
 Serum calcium Normal  
 Serum glucose Normal  
 Autoantibody screen Normal  
 Venereal Disease Research Laboratory test Negative  
 Serum vitamin B12 Normal  
 Chest X-ray Normal  
 Magnetic resonance imaging brain and orbits Normal  
 Cerebrospinal fluid analysis Unremarkable

What is the most likely diagnosis?

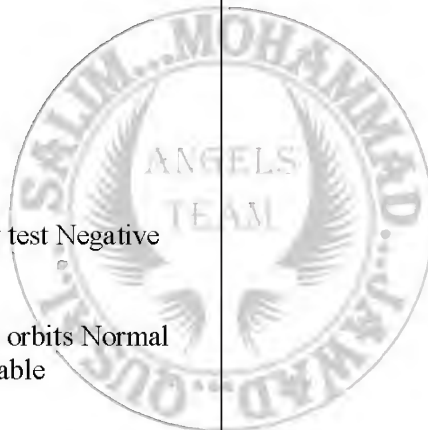
Options

- A. Multiple sclerosis
- B. Alcohol/tobacco induced optic neuropathies
- C. Leber's optic atrophy
- D. Giant cell arteritis
- E. Glaucoma

No.: 49

C

The history is classical for Leber's hereditary optic neuropathy (LHON), a mitochondrial gene defect that tends to cause bilateral painless visual loss in young males.





No.: 50

A 54-year-old woman presented to hospital with a 2-day history of severe right-sided headache and blurred vision. Her only past history was of hypertension, treated with valsartan. There was a family history of hyperthyroidism. She had suffered from intermittent headaches in the past but the current headache was by far and away the worst she had ever experienced .

On examination she was agitated and distressed. Her temperature was 37.8°C, pulse 120 beats per minute and blood pressure 155/95 mm Hg. There was chemosis and proptosis of the right eye. She was unable to look up or down with the right eye but could look to the side. The right pupil was dilated and unresponsive to light. The left eye was normal. Fundoscopy showed bilateral papilloedema .

What is the most likely diagnosis?

Options Choose 1

- A. Cavernous sinus thrombosis
- B. Chronic paroxysmal hemicrania
- C. Cluster headache
- D. Grave's ophthalmopathy
- E. Hypertensive encephalopathy

No.: 50

A

The picture is classical for cavernous sinus thrombosis, a rare, potentially fatal condition, usually associated with underlying bacterial infection of a facial sinus or the upper pharynx .

The description is too florid for cluster headache and chronic paroxysmal hemicrania (a recurrent severe headache that persistently affects the same side of the head). The onset is too rapid for Graves's.





No.: 51

A 35-year-old male lawyer was referred to accident and emergency (A and E) with a 3-week history of severe pain around his left eye. The pain had initially started without warning and had woken him from sleep. He described the pain as excruciating. It was limited to the left hemicranium. The pain was not constant, but seemed to start most evenings and persist for up to an hour. The headaches were associated with watering of his left eye and a blocked left nostril. There was no past history of similar episodes and no other past history of note. He smokes 20-30 cigarettes per day and drank 30-40 units of alcohol/week.

On examination he was alert and orientated with a Glasgow Coma Scale score of 15/15. His blood pressure was 132/76 mm Hg. He was afebrile and there was no neck stiffness. The left eye was red with conjunctival injection and mild oedema of the eyelid. There was a partial left-sided ptosis and miosis.

Which of the following therapeutic options is most likely to alleviate his acute headache?

Options Choose 1

- A. Aspirin
- B. Carbamazepine
- C. Indomethacin
- D. Oxygen 100% FiO<sub>2</sub>
- E. Verapamil

No.: 51

D

The description is typical of Cluster Headache. Hi-flow O<sub>2</sub> administered early in an attack has been shown to be the best acute treatment. Sumatriptan and ergotamine may also be effective in acute attacks. Steroids, verapamil and neurosurgery have all been used in chronic therapy/prophylaxis.







<p>No.: 1</p> <p>This 64-year-old gentleman had become aware of increasing sun sensitivity and had developed blisters and milia on his scalp and hands. Which investigation is most likely to confirm the diagnosis :</p> <p>Options</p> <p>A. Skin Biopsy B. Photo testing C. Patch testing D. Porphyrin studies in stool and urine E. Plasma Iron</p>	<p>No.: 1</p> <p><b>D</b></p> <p>Lupus vulgaris is the commonest skin condition caused directly by TB infection. It often presents on the head, neck upper limbs with red-brown raised nodules or plaques which look like apple-jelly when pressed with a glass slide. The condition is most commonly due to haematogenous spread from a primary lesion although direct spread can occur also. The lesions heal with scarring, and new lesions spread out to form a chronic solitary erythematous plaque. Chronic lesions are at high risk of developing squamous cell carcinoma.</p>
<p>No.: 2</p> <p>This 64-year-old gentleman had become aware of increasing sun sensitivity and had developed blisters and milia on his scalp and hands. Which investigation is most likely to confirm the diagnosis :</p> <p>Options</p> <p>A. Skin Biopsy B. Photo testing C. Patch testing D. Porphyrin studies in stool and urine E. Plasma Iron</p>	<p>No.: 2</p> <p><b>D</b></p> <p>The man has Porphyria Cutanea Tarda (PCT). This type of porphyria usually presents late in life. Typically there is 'Fragile skin', vesicles and bullae on the back of hands, and scalp. The diagnosis is confirmed by pinkish red fluorescence in urine when illuminated with Woods lamp .</p> <p>PCT Type I- (acquired) induced by drugs, especially alcohol or chemicals. Type II (hereditary). Enzyme abnormality: Urogen decarboxylase .</p> <p>Investigation &amp; Diagnosis :</p> <p>Histopathology: subepidermal bullae, v little inflamm infiltrate</p> <p>Chemistry: Serum Iron may be increased Blood Glucose: increased in patients with coexiatant DM Liver Biopsy: Porphyrin flourescence +/- Fatty change Porphyrin studies: ♦ Uroporphyrin in urine &amp; plasma; Isocoporphyrin in faeces</p> <p>Management: Ethanol avoidance; Weekly phlebotomy (500ml); Chloroquine with caution.</p>



<p>No.: 3</p> <p>A 24-year-old male patient had been unwell with a diarrhoeal illness but had recovered whilst holidaying in Thailand. He also admitted to an episode of non-specific urethritis that had resolved. Several weeks later he had found it painful to walk and was referred initially to the rheumatologists. Examination of his feet revealed brown warty papules. What is the most likely diagnosis :</p> <p>Options</p> <p>A. Plantar Psoriasis B. Keratoderma Blennorrhagica C. Climacteric Keratoderma D. Arsenical keratoses E. Pompholyx</p>	<p>No.: 3</p> <p><b>B</b></p> <p>The story is typical of Reiter's Syndrome (RS), and the rash is that of Keratoderma Blennorrhagica. RS is defined by an episode of peripheral arthritis of more than 1 months duration occurring in association with urethritis and or cervicitis, frequently accompanied by keratoderma blennorrhagicum, circinate balanitis, conjunctivitis and stomatitis .</p> <p>Genetic factors: HLA B 27 Enteric pathogens: Salmonella , Yersinia, Campylobacter, Shigella</p> <p>Epidemic form: most common in UK &amp; USA. Post venereal exposure Postdysenteric form- most common in continental Europe and N Africa</p> <p>Keratoderma Blennorrhagica: Red to brown papules and vesicles and pustules, with central erosion, peripheral scaling on the dorsilateral and plantar foot.</p>
<p>No.: 4</p> <p>This adult patient had developed a number of pigmented lesions which when irritated or chafed by clothing became urticated and inflamed. This was easily reproduced at clinic by stroking the lesions with gentle pressure. What is the most likely diagnosis :</p> <p>Options</p> <p>A. Histiocytosis X B. Secondary syphilis C. Papular sarcoid D. Telangiectasia macularis eruptiva perstans E. Adult type (diffuse cutaneous mastocytosis) mastocytosis</p>	<p>No.: 4</p> <p><b>E</b></p> <p>Mastocytosis is associated with an abnormal accumulation of mast cells in the skin and at various sites. Because of pharmacologically active substances this is manifested by local cutaneous and systemic symptoms. Most patients with mastocytosis have only cutaneous involvement with no systemic involvement (flushing, vomiting, syncope etc). The lesions tend to become red, itchy and urticated if rubbed (Darier's sign) .</p> <p>Management : Avoidance of drugs that may cause mast cell degranulation &amp; histamine release e.g. alcohol, dextran, morphine, codeine and NSAIDs . Antihistamines: H1 &amp; H2 antagonists Other agents that may be used include ketotifen, disodium cromoglycate (for pruritis) and PUVA (recurrence is likely).</p>



<p>No.: 5</p> <p>A 66-year-old gentleman had a solitary patch of eczematized skin over his thigh which had been treated on and off by his GP with high potency topical corticosteroid but had not resolved. Which investigation is the most appropriate next step :</p> <p>Options</p> <p>A. FBC &amp; Eosinophil count B. Patch testing C. Bone marrow D. Skin Biopsy &amp; T cell receptor gene rearrangement studies E. CT abdomen and pelvis to search for malignancy</p>	<p>No.: 5</p> <p><b>D</b></p> <p>Cutaneous T-cell lymphoma is a term that applies to T cell lymphoma first manifested in the skin, but since the neoplastic process involves lymphoreticular system lymph nodes and internal organs can become involved during the course of the disease.</p>
<p>No.: 6</p> <p>A middle-aged woman had noticed firm, asymmetric nodular areas over the pretibial area of her legs, some swelling of her eyelids and increased redness of her palms. What single investigation will be most likely to provide the diagnosis :</p> <p>Options</p> <p>A. Thyroid function studies B. Skin biopsy from one of the nodular areas C. Auto antibody profile D. Serum biochemistry E. Scintigraphic imaging</p>	<p>No.: 6</p> <p><b>A</b></p> <p>The patient is likely to have Graves' Disease (Hyperthyroidism &amp; diffuse goitre, ophthalmopathy and dermopathy). This is associated with pretibial myxedema (bilateral, asymmetrical firm non pitting nodules and plaques on the anterior aspect of the shin); in severe cases this can produce significant deformity. Graves' may also be associated with acropachy (proliferation of the periosteum and clubbing). Other signs include Plummer's nails (onycholysis) . Eye signs: Proptosis, lid retraction, periorbital swelling, exophthalmic ophthalmoplegia, strabismus, and diplopia.</p>
<p>No.: 7</p> <p>A 29-year-old lady was referred with persistent acneiform perioral eruption. She had mild eczema as an infant but otherwise had never had any skin problem, she had used a variety of mild to moderate potency steroids on the recommendation of her GP, with no success. Which of the following is the most appropriate next step :</p> <p>Options</p> <p>A. Skin swab, C&amp;S B. Empirical course of treatment with Flucloxacillin &amp; nasal Bactroban C. Oral minocycline D. Withdraw all topical corticosteroid preparations E. Oral glucose tolerance test</p>	<p>No.: 7</p> <p><b>D</b></p> <p>Peri-oral dermatitis is a common disorder that frequently affects young female patients, there is often a history of atopy. It can be precipitated by and exacerbated by topical corticosteroid, which unwittingly are often prescribed. The advice should be to discontinue all topical steroid and to explain to the patient that it may get worse initially but will eventually remit, sometimes a course of tetracycline can be given over 6 weeks, which may expedite its resolution.</p>





<p>No.: 8</p> <p>A 15-year-old girl had been treated unsuccessfully with a course of oral iron for iron deficiency anaemia presumed to have occurred as a response to the increased physiological demands of adolescence. She was referred to you because of a mildly dry skin; you observe that she has a number of erythematous, blanching lesions over her cheeks that refill centrally. She has a bruit audible over the mid zone of the right hemi-thorax .</p> <p>What simple investigation may help?</p> <p>Options</p> <p>A. Serum ferritin B. CXR C. Upper &amp; lower GI endoscopy D. Liver function tests E. Skin biopsy</p>	<p>No.: 8</p> <p><b>B</b></p> <p>This is a clinical diagnosis - Osler Weber Rendu/Hereditary Haemorrhagic Telangiectasia (HHT). Telangiectasia are collections of persistently dilated capillaries that blanch on pressure and fill from a central feeding arteriole. Telangiectatic lesions are commonly seen in the nose and oral cavity, especially on the buccal mucosa. The condition has an autosomal dominant pattern of inheritance, but 20% occur spontaneously. It can present in adolescence with iron deficiency anaemia due to GI blood loss. Other manifestations are haemoptysis and large AV shunts (audible as a bruit on auscultation, and visible on CXR when large). Topical oestrogens applied to the nasal vestibule have been used, and are thought to work by inducing squamous metaplasia of the nasal endothelium.</p>
<p>No.: 9</p> <p>A female patient in her early thirties was referred because of a rash that involved the lateral aspects of her neck, her axillae and the flexor aspects of her elbows. She had recently been investigated for atypical chest pains and a routine ECG had demonstrated some lateral T wave inversion. She had always had problems with recurrent dislocation of her joints but was otherwise well. Closer inspection revealed plaques that had a yellowish xanthomatous appearance. What is the likely diagnosis :</p> <p>Options</p> <p>A. Familial hyperlipidaemia B. Necrobiotic xanthogranulomata C. Pseudoxanthoma elasticum D. Diabetes mellitus and secondary hypertriglyceridaemia E. Ehlers Danlos syndrome</p>	<p>No.: 9</p> <p><b>C</b></p> <p>Pseudoxanthoma elasticum is a serious hereditary disorder of connective tissue that involves the elastic tissue that involves the elastic tissue in the skin, blood vessels and eyes. The principal skin manifestations are a distinctive peau d'orange surface pattern resulting from closely grouped clusters of yellow papules in a reticular pattern on the neck, axillae and groins .</p> <p>Other manifestations include GI haemorrhage; Hypertension, intimal occlusion renal arteries; Claudication; Premature coronary artery disease. Asymptomatic skin lesions usually present by 30 years of age, but may go undetected until much older. Reduced visual acuity may occur, and other ocular manifestations include angioid streaks, and retinal haemorrhage .</p> <p>Differential diagnoses: Lax yellow plaques: Cutis laxa, Ehlers Danlos syndrome, and xanthomatosis. Angioid streaks: Sickle cell anaemia, Paget's disease of bone, Ehlers Danlos syndrome .</p> <p>Management: Genetic counselling; Multi-disciplinary approach(dermatology/ ophthalmology/ cardiology/ Gastro etc).</p>





No.: 10

An elderly gentleman who lived alone presented to casualty having fallen. He was seen by the casualty officer who noted that he looked unkempt and had extensive bruising. On closer examination the areas of haemorrhage were peri-follicular on the lower limbs and the hair over the legs had a coiled appearance. There were extensive ecchymoses over the upper limbs. Haematological indices demonstrated a normochromic normocytic anaemia, clotting studies were normal and serum protein electrophoresis was within normal values. What of the following investigations would you request :

Options

- A. B12 & Folate
- B. Bone marrow trephine and aspirate
- C. Cryoglobulins
- D. Platelet ascorbic acid level
- E. Plain films of the lower limbs

No.: 10

D

Scurvy is an acute or chronic illness of the very young or elderly caused by a dietary deficiency of ascorbic acid, particularly common amongst the edentulous elderly who live alone and may be reluctant to cook for themselves (tea & toast diet!), and alcoholics. Affected individuals frequently have multiple vitamin deficiencies .

Clinical features: Perifollicular haemorrhage; 'corkscrew' hairs; follicular hyperkeratosis; extensive ecchymoses; splinter haemorrhages; swollen purple, gingiva that bleed easily; loosening of teeth; haemorrhage into periosteum of long bones & joints; epiphyseal swelling in children; retrobulbar, sub-arachnoid and intra-cranial bleeds can cause sudden death .

Investigations: Haematology: normochromic normocytic anaemia. Concomitant folate deficiency may result in a mixed picture. Chemistry: Reduced platelet ascorbic acid levels (< 25% normal value) and reduced serum ascorbic acid levels. Imaging: X-ray findings characteristic .

Management: Ascorbic acid 100mg 3-5 times daily until 4 g given, 100mg/d thereafter curative in days to weeks.

No.: 11



A 60-year-old male complains of these lesions developing over the last 8 months. The most likely diagnosis is:

Options

- A. Behcet's disease
- B. Stevens-Johnson syndrome
- C. Herpes simplex
- D. Squamous cell carcinoma
- E. Pemphigus vulgaris

No.: 11

D

Squamous Cell Carcinoma is a malignant tumour of keratinocytes. It usually arises in sun damaged skin, scar tissue. It is more common in transplant recipients, and this is thought to be due to the immunosuppression these patients receive. The lesions are typically hyperkeratotic, ulcerated, expanding nodules; invasion of the dermis allows metastases to local lymph nodes. Treatment: excision / radiotherapy.

No.: 12



A 60-year-old male presented with this eruption. It failed to settle with oral antibiotics. The most likely diagnosis is:

Options

- A. Pemphigus vulgaris
- B. Bullous Pemphigoid
- C. Linear IgA disease
- D. Dermatitis herpetiformis
- E. Erythema multiforme

No.: 12

B

Bullous pemphigoid is an antibody-mediated autoimmune disorder that presents with large tense blisters on an erythematous background. The antibodies are against the hemidesmosomes at the junction of the dermis and epidermis resulting in a split at the dermoepidermal junction. Immunofluorescence histology shows deposition of IgG and C3. Patients are usually over 60 years old.

Treatment is oral steroids (e.g. Prednisolone 40-60mg) and steroid-sparing agents such as azathioprine.

No.: 13



A 35-year-old male presented with a 3-month history of pain and tearing of the foreskin on intercourse. The most likely diagnosis is :

Options

- A. Herpes simplex
- B. Lichen planus
- C. Zoons balanitis
- D. Behcet's disease
- E. Lichen sclerosus

No.: 13

E

Lichen sclerosus is an atrophic condition of vulva, penis and other body sites. It presents as white patches, erythema and atrophy with shrinkage of the tissues. Phimosis is common leading to problems with erection. In the female, it results in hooding of the clitoris and reduction of the aperture of the vagina and resorption of the labia minora. Treatment: potent topical steroids Dermovate/circumcision.





No.: 14



-40-year-old male presented with this pruritic eruption on the elbows, knees and buttocks. The most appropriate investigation is :

Options

- A. FBC
- B. Skin biopsy and immunofluorescence
- C. Endoscopy
- D. Indirect immunofluorescence
- E. IgE level

No.: 14

B

The picture shows dermatitis herpetiformis. This is an intensely itchy eruption and is associated with coeliac disease. On questioning patient will often have GI symptoms and gut biopsy shows partial villous atrophy and increased lymphocytes. The split is at the dermoepidermal junction with patchy deposition of IgA . Treatment: gluten free diet, dapsone, sulphapyridine.

No.: 15



An 18-year-old female presented with the following appearance the diagnosis is :

Options

- A. Vitiligo
- B. Idiopathic guttate hypomelanosis
- C. Atopic dermatitis
- D. Pernicious anaemia
- E. Piebaldism

No.: 15

A

This is an autoimmune disorder against melanocytes. The disease presents at a young age, and lesions are usually symmetrical. Patients should be instructed to be particularly careful with sun exposure, as the pale patches have no inherent protection, and thus have increased risk of developing malignancy . Treatment: potent topical steroids, PUVA.



No.: 16



A 73--year-old-male presented with the following lesion on the nose, it had progressed over the last 8 months, and the diagnosis is:

Options

- A. Squamous cell carcinoma
- B. Basal cell carcinoma
- C. Keratoacanthoma
- D. Sebaceous hyperplasia
- E. Malignant melanoma

No.: 16

B

The lesions of BCC typically have a rolled, pearly edge with a central keratin crater. The lesions are slow growing and tend to be more common in older people. Tend not to metastasise; the spread is by local invasion and along tissue planes .

Treatment: Rx excision/radiotherapy.



No.: 17



An 18-year-old Afro Caribbean woman presented with this lesion, the most likely diagnosis is :

Options

- A. Basal cell carcinoma
- B. Sarcoidosis
- C. Keloid scarring
- D. Systemic lupus erythematosus
- E. Granuloma annulare

No.: 17

C

Keloid is hypertrophic scarring of the skin. It is more common in black and then Asian skins and on the décolletage area (post CABG) .

Treatment: potent topical steroid, intralesional steroid, excision with radiotherapy.



No.: 18



A 42-year-old Afro Caribbean woman presented with a 5-month history of these lesions around the nose and eyes. A skin biopsy showed naked granulomata. The initial investigations should be :

Options

- A. Pulmonary function tests
- B. Double stranded DNA
- C. A muscle biopsy
- D. Vitamin D levels
- E. Serum ACE level

No.: 18

E

The lesions and the origin of the patient both suggest sarcoidosis - a granulomatous condition of unknown cause. It is important to determine if there is any systemic involvement hence serum ACE (and possibly CXR). Sarcoidosis is a multisystem disorder but can have only cutaneous lesions .

Treatment: steroids, doxycycline, allopurinol.



No.: 19



A 42-year-old male presented with a 5-month history of these lesions on the face. A skin biopsy showed naked granulomata. The initial investigation should be :

Options

- A. Pulmonary function tests
- B. Double stranded DNA
- C. Muscle biopsy
- D. Serum calcium level
- E. Serum ACE level

No.: 19

E

The lesions and the histology suggest sarcoidosis - a granulomatous condition of unknown cause. Although less frequent in Caucasians as compared to Afro Caribbean ♦s, the presence of granulomas should alert you to the diagnosis. It is important to determine if there is any systemic involvement (hence serum ACE). Sarcoidosis is a multisystem disorder but can have only cutaneous lesions .

Treatment: steroids, doxycycline, allopurinol.



No.: 20



A 60-year-old woman with insulin dependant diabetes mellitus presented with partially treated lesions on the lower leg. The diagnosis is :

Options

- A. Bowen's disease
- B. Granuloma annulare
- C. Morphea
- D. Necrobiosis lipoidica
- E. Pretibial myxoedema

No.: 20

D

Necrobiosis lipoidica presents as yellowish plaques on the shins in patients with DM (more common in Type 1 than Type 2). The picture shows the typical appearance of partially treated disease as there is evidence of atrophy and skin thinning but the lesion is still active on the upper pole.

No.: 21



A 38-year-old male presented with this lesion on the foot. The diagnosis is :

Options

- A. Lentigo
- B. Acral melanoma
- C. Lentigo maligna
- D. Nodular melanoma
- E. Compound melanocytic naevus

No.: 21

B

Acral refers to the involvement of palms and soles. In malignant melanoma, depth of invasion is a good prognostic indicator (Breslow index) and lesions with less than 0.76 mm are associated with 98% 5-years survival; prognosis worsens with deeper lesions. Melanoma metastasises to local nodes and liver. Rx initially local excision, and then 1 cm margins down to fascia. 3 monthly follow-up for 1 year and then 6 monthly for 5 years.



No.: 22



This 53-year-old female presented with a rash over the face, neck and hands following a weekend in the garden. She gave a history of progressive difficulty climbing the stairs and getting out of her chair. The most appropriate initial investigation should be :

Options

- A. Skin biopsy
- B. Creatine phosphokinase level
- C. Double stranded DNA level
- D. Muscle biopsy
- E. Niacin levels

No.: 22

B

The photosensitive dermatitis and proximal myopathy suggest a diagnosis of dermatomyositis. CK will confirm myositis; it is the least invasive and most appropriate initial investigation. Dermatomyositis typically presents with a heliotrope rash around eyes, on chest and Gottron's papules over the knuckles with a proximal myopathy. Nail fold haemorrhages are common. There is an association with internal malignancy - Rx steroids, Azathioprine.

No.: 23



A 42-year-old female presented with these itchy lesions, there were also oral lesions the most likely diagnosis is :

Options

- A. Psoriasis
- B. Granuloma annulare
- C. Lichen simplex
- D. Pemphigus
- E. Lichen planus

No.: 23

E

Lichen planus presents with itchy flat-topped papules on wrists, lower legs and oral lesions. Aetiology is unknown. The purple polygonal papules are often described with Wickham's striae on the surface. There are white lacy reticular lesions in the mouth. Rx steroids or PUVA.

No.: 24



No.: 24

C

This is a genetic disorder of keratinisation (fish scales).  
Treatment: emollient

What is the diagnosis :

Options

- A. Atopic dermatitis
- B. Lichen planus
- C. Ichthyosis
- D. Psoriasis
- E. Porphyria cutanea tarda



No.: 25



A 15-year-old presented as follows, the lesions resolved following a case of oral itraconazole. The diagnosis is :

Options

- A. Guttate psoriasis
- B. Pityriasis rosea
- C. Pityriasis versicolor
- D. Tinea unguium
- E. Pityriasis alba

No.: 25

C

Pityriasis versicolor is caused by infection with *Malassezia furfur* (a yeast that occurs as part of the normal flora of human skin). In Caucasians it presents most commonly on the trunk with reddish brown scaly macules, which are asymptomatic. In tanned or dark skin, it presents as hypopigmented patches over the trunk. It often becomes apparent on tanning, as the infected patches cannot produce melanin. Diagnosis is with Wood's light examination or skin scrapings .

Treatment: antifungals, topical/oral, terbinafine, itraconazole.

No.: 26



A 30-year-old male presented with these lesions on the elbows and knees. Biochemistry revealed cholesterol 8.5 mmol/l and triglycerides 12.2 umol/l. The most likely diagnosis is :

Options

- A. Dermatitis herpetiformis
- B. Xanthelasma
- C. Urticaria pigmentosa
- D. Molluscum contagiosum
- E. Eruptive xanthomata

No.: 26

E



No.: 27



A 28-year-old male presented with a dry cough and these lesions on the palms and soles. The cutaneous diagnosis is :

Options

- A. Annular erythema
- B. Erythema multiforme
- C. Erythema ab igne
- D. Erythema marginatum
- E. Erythema gyratum repens

No.: 27

B

Erythema multiforme is a hypersensitivity reaction of acute onset frequently caused by infection or drugs. A cell mediated cutaneous lymphocytotoxic response is present. Clinically there are target lesions on palms and soles although other body sites can also be affected. Frank blistering is not uncommon. Common causes are HSV and Mycoplasma pneumonia but many infections (EBV, orf, HIV) and some drugs (sulphonamides, barbiturates) are implicated. If mucous membranes involved this is called Stevens Johnson syndrome. If severe and all skin involved with full thickness necrosis = Toxic epidermal necrolysis.

No.: 28



A 24-year-old female with bloody diarrhoea, weight loss and malaise presented with this lesion on the leg. The most likely diagnosis is :

Options

- A. Necrobiosis lipoidica
- B. Vasculitis
- C. Pretibial myxoedema
- D. Squamous cell carcinoma
- E. Pyoderma gangrenosum

No.: 28

E

Pyoderma gangrenosum is a disorder of unknown aetiology that presents with erythematous nodules or pustules that frequently ulcerate. The ulcerated lesion has a violaceous rolled edge, and can grow with alarming speed. It is associated with inflammatory bowel disease, haematological malignancy (myeloma, monoclonal gammopathy, leukaemia), rheumatoid arthritis, and liver disease (e.g. primary biliary cirrhosis). Up to 20% are idiopathic. Rx underlying disease, steroids, CyA, Aza, IVIG, and infliximab.

No.: 29



This 20-year-old female with a history of epilepsy since childhood presents with this appearance, the cutaneous diagnosis is of:

Options

- A. Cafe au lait spots
- B. Shagreen patch
- C. Ash leaf macule
- D. Adenoma sebaceum
- E. Neurofibroma

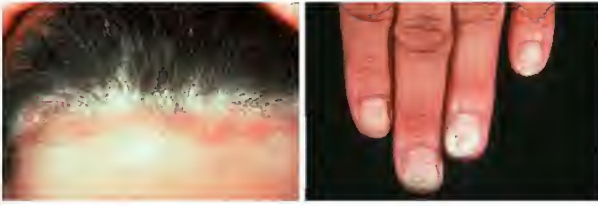
No.: 29

D

This is the classical appearance in tuberous sclerosis. TS is an autosomal dominant disorder (defect localised to chromosome 9q34). There are a variety of hamartomatous growths. The cardinal features are mental retardation, epilepsy and cutaneous abnormalities e.g. periungual fibroma, shagreen patches, ash leaf macule and adenoma sebaceum. Cutaneous diagnosis here is adenoma sebaceum. This cutaneous abnormality manifests between 5-10 years of age and consists of reddish nodules.



No.: 30



This man complains of a skin condition. The diagnosis is :

Options

- A. Folliculitis
- B. Tinea corporis
- C. Alopecia areata
- D. Seborrheic eczema
- E. Psoriasis

No.: 30

E



No.: 31



This 58-year-old lady presents with a rash and proteinuria. The most likely diagnosis is :

Options

- A. Dermatomyositis
- B. Discoid lupus erythematosus
- C. Sarcoidosis
- D. Vasculitis
- E. Systemic lupus erythematosus

No.: 31

E

SLE is a multisystem disorder and all organs can be affected. There are three clinical variants of this disease: chronic discoid lupus, subacute cutaneous lupus and systemic lupus. Skin involvement results in an erythematous scaly rash in areas of sun exposure. Serum anti-nuclear factor is positive, and anti-double stranded DNA is the most specific antibody. Treatment: Rx topical steroids, antimalarials.



No.: 32



This 28-year-old male complains of dysuria and arthralgia. The cutaneous diagnosis is :

Options

- A. Keratoderma blennorrhagica
- B. Reiter's syndrome
- C. Psoriasis
- D. Circinate balanitis
- E. Iritis

No.: 32

D



No.: 33



This 39-year-old renal transplant patient presents with the following appearance. The diagnosis is :

Options

- A. Bullous pemphigoid
- B. Porphyria cutanea tarda
- C. Impetigo
- D. Erythema multiforme
- E. Squamous cell carcinoma

No.: 33

B

Porphyria cutanea tarda is a rare genetic disorder (defect in uroporphyrinogen decarboxylase) that is associated with liver disease usually due to excessive alcohol or Hep C infection. Photosensitivity, skin fragility, subepidermal blisters, hyperpigmentation and hypertrichosis of the sun exposed sites. Diagnosis is confirmed by elevated urinary uroporphyrins. Elevated iron is a feature and venesection can alleviate the symptoms. Risk factors: genetic haemochromatosis, HCV, EtoH, and oestrogens and haemodialysis due to poor filtration of the porphyrins unmasking subclinical PCT. Treatment: sun avoidance or protection. Treatment of underlying cause. Venesection. In dialysis EPO allows the removal of excess iron into Hb.



No.: 34



A 70-year-old man give a 4-month history of itchy lesions, a skin biopsy reveals lymphocytes in the epidermis. The most likely diagnosis is of :

Options

- A. Mycosis fungoides
- B. Psoriasis
- C. Eczema
- D. Drug eruption
- E. Sweets neutrophilic dermatosis

No.: 34

A

Mycosis fungoides is a slowly evolving T cell lymphoma of the skin. Key feature is the presence of lymphocytes in the epidermis and papillary dermis. It presents in middle age to elderly patients, pruritic and cutaneous plaques; may involute spontaneously, remain unchanged or progress to nodules and ulcerations. Treatment is control rather than cure. Steroids, PUVA, UVB.

No.: 35



This 48-year-old Israeli lady presents with a 2-week history of skin fragility; there is orogenital involvement. A skin biopsy and immunofluorescence will show :

Options

- A. Linear IgM and C3 at the basement membrane
- B. A chicken wire pattern in the epidermis
- C. Patchy IgA at the basement membrane
- D. Linear IgA at the basement membrane
- E. Patchy IgM and C3 at the basement membrane

No.: 35

B





No.: 36



This 23-year-old presents with this lesion. The most important investigation is :

Options

- A. Serum ACE
- B. Blood glucose level
- C. FBC
- D. TFT
- E. CXR

No.: 36

B

The lesion is granuloma annulare. This occurs more commonly in patients with diabetes. The lesions are characterised by clusters of small dermal papules that often form into rings or part of a ring. They are common on the dorsal surfaces of hands and feet. Spontaneous resolution often occurs but cryotherapy or topical or intralesional steroids may help.



No.: 37



This 18-year-old male presents with a 3-month history of this rash. This is a disorder of the:

Options

- A. Apocrine glands
- B. Sebaceous glands
- C. Endocrine glands
- D. Eccrine glands
- E. Sweat glands.

No.: 37

**B**

The young man has acne. This is a disorder of the pilo-sebaceous unit. The cardinal features are open comedones (blackheads), closed comedones (whiteheads), inflammatory papules and pustules. The skin may be greasy (seborrhoea). Rupture of the inflamed lesions may lead to deep-seated dermal inflammation and nodulo-cystic lesions. Treatment is aimed at decreasing sebum production, decreasing bacteria, normalising duct keratinisation and/or decreasing inflammation. Treatment is with topical agents, benzyl peroxide, antibiotics, vitamin A (retinoids), oral tetracycline, and isotretinoin.

No.: 38



What are these lesion seen on the back of an 87-year-old man :

Options

- A. Solar keratoses
- B. Bowens disease of the skin
- C. Melanoma
- D. Guttate psoriasis
- E. Squamous cell carcinoma

No.: 38

A

Common things appear commonly!

No.: 39



A 32-year-old man presents with a rash on his hands, knees and chest. What is the diagnosis :

Options

- A. Guttate psoriasis
- B. Secondary syphilis
- C. Erythema multiforme
- D. Lichen planus
- E. Eczema

No.: 39

C

Erythema multiforma ♦ there are multiple target like lesions.

No.: 40



This middle aged man had mild arthralgia and developed arcuate scaling lesions in a photosensitive distribution. What is the most likely diagnosis :

Options

- A. Dermatomyositis
- B. Psoriasis vulgaris
- C. Drug eruption
- D. SCLE
- E. Generalised DLE

No.: 40

D

annular or psoriasiform  
distribution in photosensitive areas  
no follicular plugging or scarring  
ANA positive in 60-80%  
Anti Ro positive >80%  
Anti La positive in 30%



No.: 41



This patient had complained of muscle and bone pain and bleeding gums. Treatment was commenced and symptoms resolved rapidly. What was the treatment :

Options

- A. Oral prednisolone
- B. Oral zinc
- C. Ascorbic acid
- D. Oral nicotinamide and b complex vitamins
- E. Oral iron

No.: 41

C

Scurvy -

Deficiency of ascorbic acid (Vit C)

NN anaemia

Haemorrhagic manifestations in skin and musculoskeletal systems

Platelet ascorbic acid level <25% normal

Rx Vit C 100mg TDS

No.: 42



This pruritic lesion arose spontaneously. What is the diagnosis :

Options

- A. Dermatofibroma
- B. Dermatofibrosarcoma protuberans
- C. Scar with sarcoidosis
- D. Foreign body granuloma
- E. Keloid scar

No.: 42

E

Pruritic or symptomatic

Can arise spontaneously, more usually follows injury to skin

Earlobes shoulders, chest and upper back

Hypertrophic scar limited to original scar/ injury

Keloid scar extends beyond original injury

No.: 43



What is the diagnosis :

Options

- A. Bullous pemphigoid
- B. Pemphigus vulgaris
- C. Hailey Hailey disease
- D. Epidermolysis bullosa acquisita
- E. Dermatitis herpetiformis

No.: 43

A

Tense, dome shaped bullae at typical sites

Autoimmune disorder

60 &lt; yoa

Dx: Light microscopy, IF serology IgG and C3 at BMZ  
+/- eosinophilia

Rx: PO steroids and steroid sparing agent

PV- erosions flaccid mucosal involvement, systemic  
upsetEBA- at sites of pressure; milia; corneal involvement;  
laryngeal involvementHailey Hailey- disease plaques, secondary infection, AD,  
erosive, oozing plaques.

No.: 44



This patient had a chronic recurrent, polymorphic, intensely pruritic eruption. Haematological studies confirmed folate deficiency. What is the likely diagnosis :

Options

- A. Allergic contact dermatitis
- B. Atopic dermatitis
- C. Scabies
- D. Neurotic excoriation
- E. Dermatitis herpetiformis

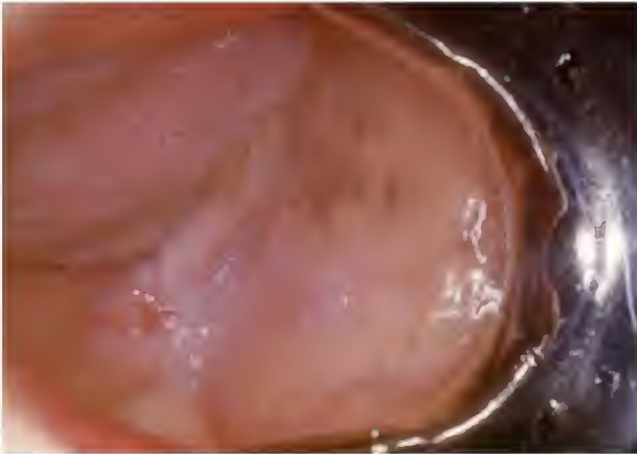
No.: 44

E

Symmetrical involvement extensor surfaces  
 Papules and vesicles  
 Associated with gluten sensitive enteropathy  
 Subepidermal vesicle, and IgA deposition  
 Steatorrhoea 20-30%  
 Iron and folate deficiency anaemia  
 Rx Dapsone (risk of methaemoglobinaemia)



No.: 45



This patient developed eroded areas in the mouth and anogenital region. This was succeeded by increased skin fragility over the trunk. What, if any, are recognised complications of this illness :

Options

- A. Epistaxis
- B. Hoarseness
- C. Dyspagia
- D. Malaise and weight loss
- E. All the above

No.: 45

E

Pemphigus vulgaris is a serious acute or chronic bullous autoimmune disease of skin and mucous membranes, often fatal .

Rx immunosuppressive agents



No.: 46



This patient complained of proximal muscle weakness and a rash over the back of the hands. What is the likely diagnosis :

Options

- A. Dermatomyositis
- B. Lupus erythematosus
- C. Chronic discoid LE
- D. Psoriasis vulgaris
- E. Irritant contact dermatitis

No.: 46

A

Violaceous erythema on the upper chest, neck and face  
Heliotrope erythema of upper eyelids  
Gottron's papules over knuckles  
Lupus spares articular sites  
Anti Jo1 30%



No.: 47



This patient who had a chronic illness developed these painless skin lesions. What is the diagnosis :

Options

- A. Necrobiosis lipoidica
- B. Sarcoidosis
- C. Granuloma annulare
- D. Xanthoma
- E. Pyoderma gangrenosum

No.: 47

A

Often, but not always, associated with Diabetes Mellitus  
Distinctive, sharply circumscribed multicoloured plaques  
anterior and lateral surfaces lower legs  
Cosmetic disfigurement  
Pain and ulceration  
%33Diabetes Mellitus  
%33abnormal OGTT  
33% Normal OGTT

No.: 48



These asymptomatic lesions evolved over many months.  
What is the likely diagnosis :

Options

- A. Tinea corporis
- B. Granuloma annulare
- C. DLE
- D. Annular sarcoid
- E. Seborrhoeic dermatitis

No.: 48

B

Self limiting, asymptomatic papules in annular arrangement; dorsal hands feet elbows knees +/- central regression

Clinically can resemble Necrobiosis lipoidica

Resolution: 2 years

No.: 49



This patient had complained of paraesthesia in the lateral border of the hand. What is the diagnosis :

Options

- A. Hyperthyroidism
- B. Down's syndrome
- C. Sicca syndrome
- D. Systemic amyloidosis
- E. Sarcoidosis

No.: 49

D

Amyloidosis- extracellular deposition of amyloid fibril proteins

Acquired systemic amyloidosis (AL, primary)- b cell or plasma cell dyscrasia and MM

Secondary amyloidosis (AA)- chronic inflammatory disease

Overlap in cutaneous stigmata. Macroglossia can occur in both .

Pinch purpura, smooth waxy nodules



No.: 50



This patient had complained of fatigue, weight loss, abdominal pain and night sweats. What is the most likely diagnosis :

Options

- A. Haemochromatosis
- B. PCT
- C. Chronic renal failure
- D. Addison's disease
- E. Vitamin B12 deficiency

No.: 50

D

Acquired hypoadrenaalism

Weakness, fatigue, anorexia, nausea, GI sympts, generalised hyperpigmentation

Low Na<sup>+</sup>, increased K<sup>+</sup> and Urea .

Tests of adrenal function

Other sites: Gingival or buccal



No.: 51



This patient had felt generally but non specifically unwell for some time. The patient, who smoked, What is the likely diagnosis :

Options

- A. Hypopituitarism
- B. Hyperthyroidism
- C. Addison's disease
- D. Niacin deficiency
- E. Cushing's syndrome

No.: 51

B

Bilateral asymmetric firm nodules and plaques in pretibial regions, can become verrucous. A feature of Grave's disease. It is called pretibial myxoedema seen in hyperthyroidism.



No.: 52



This patient had an itchy rash that had not responded to treatment with antihistamines, topical and oral corticosteroids scabicide lotion or homeopathic preparations. What is the diagnosis :

Options

- A. Nodular prurigo
- B. Sezary's syndrome
- C. Dermatitis artefacta
- D. Scabies
- E. Delusions of parasitosis

No.: 52

D



No.: 53



This patient was referred with a newly pigmented lesion.  
What is the most likely diagnosis :

Options

- A. Malignant melanoma
- B. Atypical naevus
- C. Congenital melanocytic lesion
- D. Becker's naevus
- E. Post inflammatory hyperpigmentation

No.: 53

D

Naevoid lesion usual adolescent onset  
Anterior chest or scapular area  
androgen responsive  
Becomes darker and frequently hair bearing at  
adolescence  
No increased malignancy risk



No.: 54



This female patient demonstrates an almost pathognomonic feature of neurofibromatosis type I. Is this :

Options

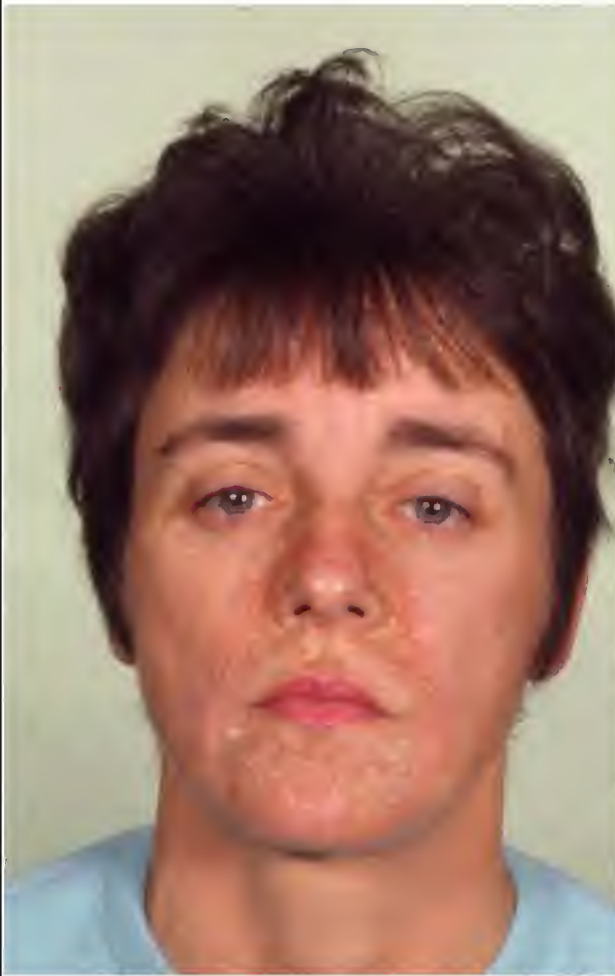
- A. Generalised freckling
- B. Greater than 6 café au lait macules
- C. Areolar neurofibromata
- D. Typical skeletal changes
- E. Plexiform neurofibromata

No.: 54

**C**

Areolar neurofibromata are virtually pathognomic for NF type 1

No.: 55



This female patient had an acneform facial eruption, which had not responded to over the counter acne preparations. Which of the following should be prescribed :

Options

- A. Moderate potency topical corticosteroid
- B. Oral minocyclin
- C. Fuscidic acid topically
- D. Isotretinoin (Roacutane)
- E. Withdrawal of all topical medication

No.: 55

E

Acne Vulgaris

Aetiology unknown

Usually affects young women

Unresponsive to topical corticosteroid and may be exacerbated by same

Withdrawal of topical Rx suggested.

No.: 56



This patient had some facial swelling and urinary frequency for several months. What is the diagnosis :

Options

- A. Lymphoma
- B. Leukaemia
- C. Sicca syndrome
- D. Rheumatoid arthritis
- E. Minkulitz's syndrome

No.: 56

E

Bilateral parotid enlargement, conjunctival injection, dry tongue, diffuse swelling of lachrymal and salivary glands

Most likely produced by :

Sarcoid

Lymphoma

Leukaemia

Urinary frequency suggests hypercalcaemia and so sarcoid is the most likely Dx



No.: 57



This man also has a large joint arthropathy. What is the likely diagnosis :

Options

- A. Melasma
- B. Minocyclin pigmentation
- C. Localised ochronosis
- D. Fixed drug eruption
- E. Porphyria cutanea tarda

No.: 57

C

Enzymatic defect (AR)

Homogentisic acid oxidase deficiency

Dark pigment accumulates at various sites, most prominent where overlying skin is thin

Dark urine, pigmented sweat, disabling large joint arthropathy



No.: 58



This patient attended his GP with erectile dysfunction, fatigue and weight gain. On examination his blood pressure was elevated. What is the likely diagnosis :

Options

- A. Calcitonin secreting medullary cell carcinoma
- B. Hypothyroidism
- C. SVC obstruction
- D. Simple obesity
- E. Cushing's syndrome

No.: 58

E

Characterised by truncal obesity, moon face, acne, hypertension

Excess adrenocorticosteroid (endogenous or exogenous)  
Cutaneous features- plethoric moon facies, erythema and telangiectasia of cheek and forehead, purple striae, atrophic skin, easy bruising, facial hypertrichosis + androgenetic alopecia in females, acne of recent onset (without comedones)

No.: 59



This Afro-Caribbean patient developed this lesion in a sun-exposed site. She had previously developed a similar lesion, which had healed with scarring. What is the diagnosis?

Options

- A. Cutaneous sarcoidosis
- B. DLE (discoid lupus erythematosus)
- C. Subacute cutaneous lupus erythematosus (SCLE)
- D. Fixed drug eruption
- E. Dermatofibroma

No.: 59

B

Discoid lupus erythematosus is characterised by localised red plaques and they are photosensitive. They have got distinctive histology showing thumbtack appearance under the microscope of lesions specially the scales annular lesions, head, neck, ears photosensitivity . Sharply marginated plaques - expands in the periphery, central regression, heal with scarring (scarring alopecia) .

P.S. See the link to the keyword no. 1

No.: 60

An elderly man presents with a painful ulcer over his lower leg. He had previously served in navy had spent a lot of time in the Far East. There was a history of high alcohol intake in the past and he smoked 30 cigarettes per day. He had a past history of sero-negative rheumatoid arthritis, but this had been clinically inactive for some time. He developed this ulcer four weeks previously but despite treatment with oral co-amoxiclav it had continued to increase in size .

Investigations revealed :

Haemoglobin 12.4 g/dl (Normal range (NR) 12-14.5)

White cell count  $12 \times 10^9/l$  (NR  $5-10$ )

Platelet count 344 (NR 150-450)

Mean corpuscular volume (MCV) 104 fl (NR 85-96)

Liver function tests Normal

Chest X-ray No abnormality detected

What likely diagnosis?



Options Choose 1

- A. Cutaneous tuberculosis
- B. Pyoderma gangrenosum
- C. Squamous cell carcinoma
- D. Tertiary syphilis
- E. Yaws

No.: 60

B

The image shows the classical pyoderma gangrenosum (PG) ulcer with a violaceous edge overhanging a deep ulcer. It is often associated with systemic inflammatory conditions, such as rheumatoid arthritis (RA), connective tissue disorders and inflammatory bowel disease (IBD) .

The tropical history is a red herring.



No.: 61

This 55-year-old woman presents a two-day history of fever and painful facial rash .

What is the most likely diagnosis?



Options Choose 1

- A. Erysipelas
- B. Impetigo
- C. Lupus pernio
- D. Lupus Vulgaris
- E. Rosacea

No.: 61

The image shows the typical erythematous rash associated with erysipelas, a cutaneous infection by streptococcus pyogenes. Impetigo would be associated with pustules and the remainder of the diagnoses listed above would not be expected to cause fever.

No.: 62

A 25-year-old man develops a rash and low-grade fever (37.6 °C) for 26 days post-allogeneic bone marrow transplant for high risk acute myeloid leukaemia in first complete remission. The rash is initially maculopapular affecting palms and soles but 24 h later general erythroderma is noted and affected the trunk and limbs. His total bilirubin was previously normal but is now noted to be 44 µmol/L. He remains very well in himself .

What would be your management of this patient at this stage?

Options Choose 1

- A. Antibiotics after blood cultures
- B. Antilymphocyte Globulin
- C. High-dose methylprednisolone
- D. Observation
- E. Prednisolone

No.: 62

This is the typical rash of acute graft versus host disease. The treatment is addition of high-dose steroids to current immunosuppressive therapy, particularly in a case such as this before multi-organ involvement sets in.



No.: 63



A 45-year-old pub landlord presented with symptoms of fatigue and general malaise. He also reported developing ulcers on his hands after changing barrels at his pub .

What is the most likely diagnosis?

Options

- A. Acute intermittent porphyria
- B. Alcoholic haemosiderosis
- C. Contact dermatitis
- D. Haemochromatosis
- E. Porphyria cutanea tarda (PCT)

No.: 63

E

The history of blisters on sun-exposed skin after minor trauma in a person with heavy alcohol intake is classical for PCT. Other predisposing factors are hepatic disease and oestrogen exposure.





No.: 1

A 15-year-old girl was referred to the RMO with a history of 7 days of bloody diarrhoea two weeks ago, with increasing nausea and malaise, and some ankle swelling over the subsequent two weeks. Her only other history was of menorrhagia, and back pain for which she took non-steroidals. She was having difficulty passing urine. She had eaten some sausages from her local butcher at a barbeque the day before developing diarrhoea. On examination she was pale, with evidence of petechiae over her legs. She had puffy eyes. Her blood pressure was 160/95. On examination she was afebrile, but had a tachycardia, and crackles on inspiration at both lung bases. She had an appendectomy scar.

FBC :

Hb 8.9

WCC 14.0

Neuts 10

Pl 27

PT 12

APTT 34

Fib 4

Biochem :

Na 138

K 6.0

Urea 30

Creat 370

Alb 29

Dipstick urine Blood ++, Protein +

The single most important next investigation would be :

Options

- A. Cardiac echo
- B. Renal tract ultrasound
- C. Urine microscopy
- D. ASO titres
- E. Stool culture

No.: 1

C

This patient presents with some of the clinical manifestations of systemic lupus erythematosus (SLE).

SLE is a connective tissue disorder in which multiple organs are damaged by the deposition of autoantibodies and immune complexes.

Almost all patients experience arthralgias and myalgias and most develop intermittent arthritis. Most patients show histological glomerular changes but clinical renal disease occurs in approximately 40%-50% of cases. Most types of glomerulonephritis occur including mesangial, focal, diffuse and membranous. Hypertension may occur. Proteinuria (> 1 g per 24 hours) is common. Progression to renal failure depends on the type of glomerulonephritis present. Anaemia of chronic disease occurs in most patients with active lupus. Autoimmune haemolytic anaemia (Coombs positive) also occurs.

Lymphopenia is common but rarely predisposes to infection. Mild thrombocytopenia occurs frequently. Five percent (5%) of patients will develop severe thrombocytopenia with purpura and bleeding. Pleural effusions as in this patient are a common pulmonary manifestation of SLE - other pulmonary changes include lupus pneumonitis and infection. Other organs involved in this multisystem disease are the skin (typical butterfly rash), central nervous system (CNS), gastrointestinal tract (GIT) and the eye. The presence of the characteristic antibodies listed confirms the clinical diagnosis of SLE. This patient has anaemia and urine dipstick shows positive blood with only mildly raised urea. She most likely has a haemolytic anaemia which will be Coombs positive.

#### Autoantibodies seen in SLE :

- ANA - 98% of patients with SLE will be positive for ANA, and repeated negative tests make the diagnosis unlikely.

#### They are non-specific :

- Homogeneous - SLE/drug induced
- Fine speckled - Sjogren
- Nucleolar - Systemic sclerosis/polymyositis
- Anti-Ds DNA - more specific - rising titres may herald relapse
- Anti-Sm - specific for SLE - more common in patients of Afro-Caribbean origin
- Anti-RNP - If present in SLE without anti-DNA Ab - risk of nephritis is low, also found in polymyositis, scleroderma and MCTD
- Anti-Ro(SSA) - ANA-negative lupus, neonatal lupus often associated with congenital heart block, Sjogren, inherited complement deficiency
- Anti-La(SSB) - associated with anti-Ro, in lupus if present risk for nephritis is low, Sjogren
- Antinuclear P antibodies - a marker for neuropsychiatric lupus

#### Other autoantibodies in CTD :

- Anti-Scl-70 ? scleroderma
- Anti-centromere ? CREST
- Anti Jo1 - Polymyositis/dermatomyositis (particularly respiratory involvement)
- Anti-mitochondrial antibody (AMA)? specific and sensitive for primary biliary cirrhosis ? do M2 ELISA
- ASA? chronic autoimmune hepatitis
- Anti gliadin (IgA) and antiendomysial ab ? coeliac disease
- P ANCA ? non specific; vasculitides, IBD
- C ANCA ? specific for Wegener granulomatosis

#### Causes of low complement :

- Congenital complement deficiency
- Renal disease - glomerulonephritis - mesangiocapillary GN (with C3 nephritic factor), poststreptococcal GN, SLE nephritis
- Collagen vascular disease - SLE
- Liver disease - acute hepatitis, chronic hepatitis
- Lymphoproliferative disease - may be deficiency of C1 inhibitor
- Haemolytic anaemia
- Septicaemia and DIC

#### Changes in CRP :

- ✓ Little/no change (4-100)
  - Most viral infections
  - Active SLE
  - Scleroderma/CREST
  - Inactive rheumatoid arthritis
  - Most tumours
- ✓ Moderate increase (100-200)
  - EBV /CMV infection
  - Bacterial infection
  - Active RA
  - Temporal arteritis/PMR
  - Lymphoma/hypermethyoma
- ✓ Large elevation (>200)
  - Severe bacterial sepsis
  - Legionella
  - Active vasculitis



No.: 2

A 15-year-old girl was referred to the RMO with a history of 7 days of bloody diarrhoea two weeks ago, with increasing nausea and malaise, and some ankle swelling over the subsequent two weeks. Her only other history was of menorrhagia, and back pain for which she took non-steroidals. She was having difficulty passing urine. She had eaten some sausages from her local butcher at a barbeque the day before developing diarrhoea. On examination she was pale, with evidence of petechiae over her legs. She had puffy eyes. Her blood pressure was 160/95. On examination she was afebrile, but had a tachycardia, and crackles on inspiration at both lung bases. She had an appendectomy scar.

FBC :

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APTT 34

Fib 4

Biochem :

Na 138

K 6.0

Urea 30

Creat 370

Alb 29

Dipstick urine Blood ++, Protein +

The single most important next investigation would be :

Options

- A. Cardiac echo
- B. Renal tract ultrasound
- C. Urine microscopy
- D. ASO titres
- E. Stool culture

No.: 2

E

The patient has haemolytic uraemic syndrome .

This typically presents with a triad of :

- 1. ARF
- 2. Microangiopathic haemolytic anaemia
- 3. Thrombocytopenia with normal clotting .

HUS is a complication of infection with verocytotoxin producing E.coli usually of the serotype O157:H7. Toxins produced in the intestine enter the blood and bind to endothelial cells in target organs. Endothelial cell damage leads to platelet and fibrin deposition with resultant fragmentation of circulating RBC and microvascular occlusion. The syndrome has also been reported after infections with coxsackie, echovirus and shigella .

The disease is characterised by the sudden onset of haemolytic anaemia with fragmentation of red blood cells, thrombocytopenia and acute renal failure after a prodromal illness of acute gastroenteritis often with bloody diarrhoea. Clinical signs include increasing pallor, haematuria, oliguria and purpura. Jaundice is occasionally seen. Hypertension may be present .

Laboratory results :

Severe anaemia, thrombocytopenia, often a neutrophilia. Blood film shows fragmented erythrocytes. U&E - typical of acute renal failure. Normal coagulation and fibrinogen .

Complications :

Neurological complications - stroke, seizure and coma occur in 25% of patients, rarely pancreatitis, pleural and pericardial effusions. 3-5% of patients will develop end stage renal failure. Long term renal sequelae range from proteinuria to chronic renal failure .

Treatment is supportive with correction of anaemia, correction of uraemia by early dialysis, strict fluid balance and treatment of hypertension .

The major differential diagnosis is :

- i) Sepsis with DIC - presents with abnormalities of clotting parameters .
- ii) TTP - Thrombotic thrombocytopenic purpura presents with microangiopathic hemolytic anemia, thrombocytopenic purpura, neurologic abnormalities, fever, and renal disease. Renal abnormalities tend to be more severe in HUS. Although once considered variants of a single syndrome, recent evidence suggests that the pathogenesis of TTP and HUS is different. Patients with TTP lack a plasma protease that is responsible for the breakdown of von Willebrand factor (vWF) multimers and these accumulate in the plasma. The activity of this protease is normal in patients with HUS. Until the test for vWF protease activity becomes available, differentiation between HUS and TTP is based on the presence of CNS involvement in TTP and the more severe renal involvement in HUS. In HUS, 90% of patients are children and a history of prodromal diarrhoeal illness is more common. The therapy of choice for TTP is plasma exchange with fresh frozen plasma .

Other causes of Microangiopathic Anaemia :

- \*Familial
- \*Post partum
- \*Drugs e.g. cyclosporin
- \*Post transplantation
- \*Accelerated hypertension
- \*Tumours - mucinous adenocarcinoma and disseminated carcinomatosis
- \*Burns
- \*Prosthetic valve





No.: 3

A 55-year-old Asian lady was seen by her GP. She had been finding it difficult to stand from a chair. She was new to the practice, having moved to Britain recently. She had been told that she had diabetes ten years ago and took gliclazide 80 mg a day. She had had no recent diabetes check ups. A medical report from 1997 showed a creatinine of 112. She gave a history of angina on exertion, for which she took an aspirin a day and GTN. She had been in hospital in India with malaria five years previously, which had been treated with iv quinine. She had felt her vision had deteriorated recently. On examination she was obese, with bilateral corneal arcus. There was evidence of proliferative retinopathy and a small haemorrhage in her right eye. Her BM was 16. Her blood pressure was 170/85, with no postural drop. Her apex was displaced but heart sounds were otherwise normal. Her abdomen was soft and she had no evidence of bruits. She had evidence of peripheral oedema. She had some proximal weakness of her muscles and peripheral loss of vibration and fine touch in her feet.

Hb 9.1

MCV 90

WCC 10

Pl 400

ESR 3

Na 140

K 5.0

urea 19

creat 295

total calc 1.75

phos 1.95

bili 15

alk phos 90

Urine dipstick glucose +

CXR Cardiomegaly

ECG Inferior Q waves

Ultrasound abdomen

Kidneys both measure 12 cm

24hour urinary protein 0.8 g/l

The most important management would be :

Options

- A. Tight glycaemic control
- B. Anti-hypertensive therapy
- C. Vitamin D replacement
- D. Erythropoietin replacement
- E. Temporary dialysis

No.: 3

B

This patient gives a ten year history of NIDDM with poor follow up and most likely poor glycaemic control. She demonstrates many of the complications of uncontrolled diabetes. She has angina- and has microvascular complications- diabetic retinopathy, and neuropathy. She has chronic renal failure with a raised urea, a raised creatinine, increased urinary protein loss and derangement of calcium and phosphate levels. Her renal disease is the result of a 'diabetic kidney' which typically presents with initial microalbuminuria and then progresses to persistent proteinuria. Diabetic retinopathy is usually associated with diabetic renal disease, as is a normochromic normocytic anaemia. Pathological changes range from thickening of the basement membrane to glomerulosclerosis. Renal osteodystrophy is a complex metabolic disorder. Glomerular damage leads to phosphate retention and this is accompanied by insufficient production of 1-hydroxylase with a deficiency in metabolically active 1,25-dihydroxycholecalciferol. Deficiency of vitamin D3 decreases absorption of calcium from the gut and secondary hyperparathyroidism ensues. Parathyroid hormone promotes absorption of calcium from bone and from the proximal renal tubules. The end result is a combination of osteomalacia, osteitis fibrosa cystica and osteoporosis. Ectopic calcification may occur if the solubility of serum calcium and phosphate is exceeded. This can manifest clinically as limited joint mobility. The serum calcium is low, and phosphate is elevated. PTH will be elevated with reduced Vitamin D levels. Control of blood pressure has been shown to slow the rate of renal deterioration and is also the most important intervention in reducing cardiovascular events. ACE inhibitors are the drugs of choice.





No.: 4

A 46-year-old bank manager consulted his GP. He had seen him two months previously reporting some weight loss and slight increasing frequency of stool, up to three times a day over the past four months, having been a ♦once a day♦ man previously. He had had severe ♦flu one month previously and had been in bed for a week. He had felt his symptoms could be due to increased stress at work, but his GP had persuaded him to be referred to open access colonoscopy, although he had not attended his appointment. His only other history was of mild depression, and arthritis of his right knee, for which he took regular diclofenac. Over the previous two weeks he had noticed some ankle swelling, which was unusual for him, and he reported that his urine was more frothy than normal, although he described no haematuria. He felt that he had put a bit of weight back on, in that his stomach was filling out again. On examination, he was slightly pale, with evidence of pitting oedema to the upper calf. His armpits were slightly pigmented. His pulse was 90 and blood pressure 95/60. His JVP was not seen. His heart sounds were normal. His chest was dull to percussion at the bases bilaterally. His abdomen was mildly distended but non-tender. There was evidence of a 2 cm firm non-tender liver edge, and presence of shifting dullness.

Hb 9.2  
MCV 66  
WCC 4.5  
Plt 340  
ESR 60  
PT 12.3  
glu 7.1  
Na 139  
K 3.2  
urea 3.4  
creat 88  
calc 2.3  
phos 1.3  
bilib 44  
alk phos 132  
Alt 28  
AST 33  
alb 21  
CRP 9  
Mg 55  
Urinalysis blood ♦ protein +++ CXR  
Bilateral pleural effusions

The unifying diagnosis is most likely to be :

Options

- A. Diabetic nephropathy
- B. Minimal change glomerulonephritis
- C. Post streptococcal proliferative Glomerulonephritis
- D. Membranous glomerulonephritis
- E. Hepato-renal syndrome

No.: 4

D

The patient has Nephrotic Syndrome.

The Nephrotic Syndrome is characterised by :

- -Heavy proteinuria >5g daily in adults; >40mg/h/m<sup>2</sup> in children
- -Hypoalbuminaemia (<30g/l)
- -Oedema
- -Hyperlipidaemia

Causes of Nephrotic Syndrome :

1. Minimal change GN - most common cause in children
2. Membranous glomerulonephritis (membranous nephropathy) - most common cause of primary nephrotic syndrome in adults
3. Focal Segmental Glomerulosclerosis
4. Membranoproliferative glomerulonephritis (mesangiocapillary proliferative glomerulonephritis)
5. Other proliferative glomerulonephritides - nephrotic syndrome may be observed in a proportion of individuals with post-streptococcal glomerulonephritis, IgA nephropathy, and Henoch-Schönlein purpura.
6. Nephrotic syndrome associated with systemic diseases -

- Diabetic glomerulosclerosis
- Amyloidosis
- Lupus nephritis

Causes of Membranous GN :

1. Neoplasia
2. Penicillamine, captopril, mercury, gold
3. Hep B, syphilis, malaria
4. RA, SLE, Sarcoid

C3 nephritic factor is an autoantibody specific for alternative pathway C3 convertase (C3bBb). This antibody stabilises C3bBb and causes consumption of C3. It is found in mesangiocapillary GN type II and partial lipodystrophy.

In this patient colonoscopy is essential to exclude a colonic neoplasm in view of previous weight loss and change of bowel habits.

Membranous glomerulonephritis is associated with neoplasia and would explain the symptoms and signs in this patient.



No.: 5

A casualty officer calls you over. A 12-year-old girl has presented with severe mouth and tongue swelling of sudden onset associated with a rash, such that she cannot give a history. The only history available from a female passer-by, who accompanied her in the ambulance was a fall whilst roller-blading. She has not responded to antihistamines and hydrocortisone, and has developed some stridor. On examination she is afebrile, and has a respiratory rate of 24. She has evidence of lip and tongue swelling, and erythema marginatum. Her sats are 94% air. There is nothing to find on abdominal examination, and no evidence of trauma relating to her fall. Her blood pressure is 85/60 .

Your next step is :

Options

- A. Perform a chest Xray
- B. Give further hydrocortisone
- C. Contact the on-call anaesthetist to assess her airway
- D. Give further chlorpheniramine
- E. Give fresh frozen plasma

No.: 5

C

It is always essential to confirm a safe airway in patients with severe stridor .

The patient has Hereditary Angioedema. This is an autosomal dominant condition, (family history NB) usually due to a deficiency of C1 esterase inhibitor (Type I). Type II (rare) is associated with the presence of non-functional enzyme .

Rarely autoantibodies to C1 esterase inhibitor are seen in SLE and lymphoma .

This glycoprotein regulates the classical complement pathway. In its absence, there is increased consumption of complement components C2 and C4 with the production of fragments that mediate oedema. Deficiency of C1 esterase inhibitor also results in increased formation of bradykinin, which enhances oedema by acting on vascular endothelium .

Clinical features include recurrent episodes of oedema of skin, gut (causing abdominal pain, diarrhoea and vomiting) and the upper airway. These episodes last hours to days. Skin lesions are not urticarial. Stress, surgery, trauma or exercise can trigger attacks. Pregnancy/ Oral Contraceptive Pill exacerbate the condition .

C2 and C4 levels are low .

Treatment is with either danazol (boosts C1 esterase inhibitor levels) or tranexamic acid (inhibits plasmin, which consumes C1 esterase inhibitor). Whilst awaiting danazol preparations, fresh frozen plasma can be administered. With severe symptoms, IM adrenaline may be useful .

The differential diagnosis in this case is allergic reaction including anaphylaxis .

Latex allergy - a possibility, gets worse with resuscitation.



No.: 6

A 63-year-old Afro-caribbean woman presents with a history of increasing tiredness and exertional breathlessness for 2 months, with some recent backache. She had a family history of sickle cell disease. Her GP could find nothing on clinical examination other than that she was pale. Investigations :

Hb 8.1

MCV 94

WCC 4.3

Pl 200

Na 138

K 4.6

urea 19

creat 290

bili 16

alk phos 120

ALT 32

TP 91

alb 31

Urine dipstick nil

The most useful further investigation in establishing the diagnosis would be :

Options

A. Blood film

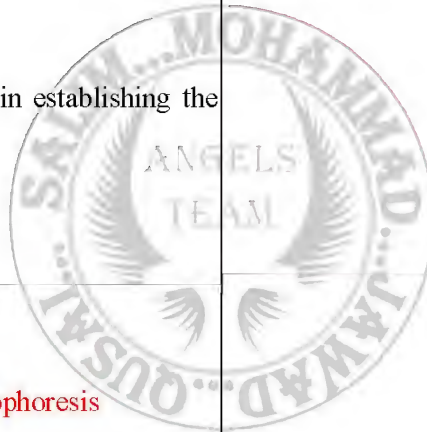
B. ESR

C. Haemoglobin electrophoresis

D. Bone marrow aspirate and trephine

E. Serum immunoglobulins and electrophoresis

No.: 6







No.: 7

A 63-year-old Afro-Caribbean woman presents with a history of increasing tiredness and exertional breathlessness for two months with some recent backache. She had a family history of sickle cell disease. Her GP could find nothing on clinical examination other than that she was pale. Investigations:

Hb 8.1  
MCV 94  
WCC 4.3  
PI 200  
Na 138  
K 4.6  
urea 19  
creat 290  
bili 16  
alk phos 120  
ALT 32  
TP 91  
alb 31  
Urine dipstick - nil

The most likely diagnosis is:

Options

- A. Renal cell carcinoma
- B. Late presentation of sickle cell disease
- C. Anaemia of chronic disease
- D. Combination of B12 and iron deficiency
- E. Multiple myeloma

No.: 7

E

In this patient, the total protein is raised suggesting a hypergammaglobulinaemia which would be apparent on serum electrophoresis and immunoglobulin levels .

Causes of a hypergammaglobulinaemia :

A. Polyclonal gammopathy :

- .1Chronic infection - bacterial osteomyelitis, tuberculosis, SBE, Viral HIV, EBV
- .2Chronic inflammation - SLE, rheumatoid Arthritis, Sjogren, inflammatory bowel disease, Hashimoto thyroiditis
- .3Hepatic disease

B) Monoclonal gammopathy :

- .1Multiple myeloma
- .2Waldenstrom macroglobulinaemia
- .3Heavy chain disease
- .4Benign paraproteinaemia
- .5Leukaemia, lymphoma or carcinoma
- .6Amyloidosis

One would be very concerned about the likelihood of multiple myeloma in this patient. This plasma cell neoplasia is characterised by serum monoclonal paraproteinaemia usually IgG (55%) but also IgA (20%) - rarely IgD. Bence-Jones protein is composed of the light chains of the paraprotein which are excreted in the urine .

Plasma cell infiltration results in skeletal destruction (can lead to vertebral collapse), hypercalcaemia and bone marrow replacement .

Renal dysfunction is due to a number of factors including tubular deposition of Bence Jones protein, hypercalcaemia, hyperuricaemia and in some cases (8-15%) deposition of amyloid. All of these eventually can result in renal failure and death .

Patients often present with unexplained skeletal pain (particularly back and thorax), fatigue and generalized weakness due to anaemia and symptoms of renal dysfunction and hypercalcaemia. Unexplained infections occur as the abnormal plasma cells and paraprotein interfere with normal immunity. More than 40% of patients with myeloma develop weight loss related to their disease. Less commonly, patients present with symptoms of hyperviscosity and thrombocytopenia related bleeding. The diagnostic laboratory finding in myeloma is monoclonal hypergammaglobulinaemia. The Bence-Jones protein can be detected in the urine. Common dipsticks do not reliably detect this protein and therefore, immunoelectrophoresis of urine should be performed. Skeletal survey often shows typical punched-out lytic lesions or diffuse osteoporosis. Normochromic normocytic anaemia is usually present and urea and creatinine are often elevated. Hypercalcaemia is found in 10% of patients at diagnosis. Bone marrow biopsy demonstrates plasmacytosis.





No.: 8

A 16-year-old girl has just completed her first cycle of CHOP chemotherapy for Hodgkin's lymphoma. She reports difficulty passing urine. Her results are as follows :

Na 145

K 8.2

Bic 9

Urea 37

Creat 515

The first management step would be:

Options

A. Vigorous rehydration with IV fluids

B. Allopurinol

C. Performing an ECG, and giving IV calcium gluconate

D. Rectal calcium resonium

E. Urgent placement of a dialysis line

No.: 8





No.: 9

An 84-year-old gentleman was found on the floor of his hallway by police, after a neighbour raised the alarm when his milk had not been taken in. On assessment in casualty, his GCS was 11/15, and he had a dense right hemiparesis. He was dehydrated. He smelt of urine. His results are as follows :

Na 147

K 7.9

Bic 21

Urea 19

Creat 240

Glu 7.5

Calcium (total) 1.68

Phosph 1.8

Bili 11

Alk phos 164

Albumin 37

Glu 9

WCC 12.3

Hb 13.9

Pl 366

Urine +++Blood +protein

CXR Unremarkable

Urine microscopy

No WC .

No RBCs .

No organisms seen .

The most likely cause of his biochemistry is:

Options

A. HONK (hyperglycaemic hyperosmolar non-ketotic syndrome)

B. Pyelonephritis

C. Chronic renal failure and renal bone disease

D. Rhabdomyolysis

E. Adult polycystic kidney disease

No.: 9

D

The most likely cause of his biochemistry is rhabdomyolysis with consequent acute renal dysfunction .

Rhabdomyolysis is the breakdown of muscle fibres with leakage of cellular contents including myoglobin and haemoglobin into the systemic circulation .

Common causes of rhabdomyolysis include :

1. traumatic crush injury
2. muscle ischaemia
3. seizures
4. excessive exercise
5. heat stroke
6. malignant hyperthermia
7. alcoholism
8. infectious causes including influenza virus, HIV
9. metabolic causes
10. drugs and toxins

Rhabdomyolysis can follow prolonged immobilization (e.g., after an unwitnessed incapacitating stroke)-as has happened in this patient .

Biochemical consequences include :

- hyperkalaemia (release of cellular potassium into the systemic circulation)
- hyperphosphataemia
- hypocalcaemia
- metabolic acidosis (release of cellular phosphate)
- acute renal failure (nephrotoxic effects of myoglobin on tubular epithelial cells). Hypovolaemia or acidosis can promote cast fx with further renal damage .
- disseminated intravascular coagulation (DIC)

Biochemistry in this patient shows raised K, raised PO<sub>4</sub>, low Ca and evidence of renal dysfunction. The renal parameters are not however sufficiently raised to explain the elevated K and other biochemistry- this is a consequence of muscle breakdown .

Urine dipstick shows +++ blood and + protein, however microscopy reveals no rbc. This is a typical finding in myoglobinuria .

Measurement of urine myoglobin and serum creatine kinase level would support the diagnosis .

Treatment: Correction of fluid and electrolyte imbalance, correction of renal dysfunction and treatment of the primary cause.



No.: 10

A 51-year-old man with a 30 year history of ankylosing spondylitis, treated with methotrexate and phenylbutazone, presents with increasing shortness of breath. On examination he has pitting ankle oedema, crackles at his lung apices and lung bases and hepatosplenomegaly. Investigations: sodium 132 mmol/l, potassium 5.6 mmol/l, urea 14.1 mmol/l, creatinine 201 mmol/l Albumin 29g/l, total protein 78g/l, CRP 34g/l, ESR 56 mm in the first hour. CXR shows cardiomegaly and pulmonary oedema. USS shows hepato-splenomegaly with large kidneys but no evidence of obstruction. Which is the most appropriate investigation to confirm the diagnosis?

Options

- A. Bone marrow biopsy
- B. ECHO
- C. SAP scan
- D. Intravenous urogram
- E. Analysis of urinary sediment

No.: 10

C

Ankylosing spondylitis is a well recognised cause of reactive amyloidosis because of the persistently elevated CRP. This patient has developed nephrotic syndrome and renal compromise. The SAP scan is a radiolabelled nuclear medicine scan that quantifies the amyloid load and distribution .

Amyloidosis is a heterogeneous group of disorders characterized by the extracellular deposition of fibrillar protein in organs and tissues. Amyloidosis can be hereditary or acquired and can be focal, localised or systemic. It is classified according to the biochemical nature of the amyloid precursor proteins. Amyloid A Amyloidosis (AA)(reactive or secondary amyloidosis) occurs as complication of chronic inflammation and presents with systemic disease. There is involvement of the renal tract and proteinuria is often the first symptom. Frank nephrotic syndrome can develop. Hypertension is rare. Hepatic involvement with associated hepatomegaly can be present. Gastrointestinal tract symptoms are common in secondary amyloidosis and can result from infiltration of the GIT or the associated autonomic nervous system. Symptoms include ulceration, malabsorption, haemorrhage, protein loss, diarrhoea and those of obstruction. Cardiac involvement is rare in secondary amyloidosis and the signs in this patient are probably due to fluid overload .

Diagnosis is confirmed by histology. The SAP scan is also useful.



No.: 11

A 15-year-old girl has a history of recurrent urinary tract infections since infancy and 3 previous episodes of pneumonia. She is noted to have a widespread erythematous facial rash, a degree of alopecia and complains of polyarthralgia and malaise .

Investigations :

Hb 10.7 g/dl

WCC 3.5 X 10<sup>9</sup>/l

Plats 120 X 10<sup>9</sup>/l

ESR 77 mm in the first hour

CRP 9 g/l

U&Es normal

C3 160 mg/dl (90-180)

C4 15 mg/dl (10-40)

CH50 <10% (80-100)

RF negative

ANA 1/160 speckled pattern

anti-Ro 1:16

anti-La 1:32

anti-dsDNA negative

anti-Jo negative

anti-RNP negative

anti-Sm positive

What is the most likely cause of her recurrent infections?

Options

A. X-linked agammaglobulinaemia

B. Wiskott-Aldrich syndrome

C. Di George syndrome

D. Hereditary complement deficiency

E. Leucocyte adhesion deficiency syndrome

No.: 11







No.: 12

A 16-year-old girl is referred for further management of leg ulcers, which are responding poorly to antibiotics and conventional management. She gives a history of gingivitis and periodontal disease despite regular dental appointments. She is the daughter of a consanguineous marriage.

Investigations :

Hb 12.3 g/dl

WCC 21.8 X 10<sup>9</sup>/l

plts 250 X 10<sup>9</sup>/l

U&Es normal

LFTs normal

C3 145 mg/dl (90-180)

C4 21 mg/dl (10-40)

CH50 89% (80-100)

RF negative

ANA negative

ENA negative

What is the most likely diagnosis?

Options

- A. X-linked agammaglobulinaemia
- B. Acute myeloblastic leukaemia
- C. Di George syndrome
- D. Acute lymphatic leukaemia
- E. Leucocyte adhesion deficiency syndrome

No.: 12

Leucocyte Adhesion Deficiency (LAD) is an autosomal recessive disorder characterised by sustained granulocytosis and recurrent infections of the skin and mucosa including severe gingivitis, periodontitis, ecthyma gangrenosum and pyoderma gangrenosum. Wound healing is delayed. Despite marked granulocytosis, abscesses with pus do not form.

There are two types of LAD. In Type 1, there is absent or deficient surface expression of the beta2-integrins which are important for the adhesion of leucocytes to vascular endothelium and their extravasation to sites of inflammation. There is defective binding of CTL and NK cells to target cells and impaired phagocytosis. T/B cell interactions are also suboptimal. In Type 1 LAD, there may be a history of delayed umbilical cord separation after birth. Type II LAD is due to the absence of another type of adhesion molecule (sialyl-Lewis X) on neutrophils. The diagnosis is confirmed by FACS analysis, which demonstrates reduced surface expression of various integrins on circulating phagocytes.



No.: 13

A 16-year-old girl is referred for further management of leg ulcers, which are responding poorly to antibiotics and conventional management. She gives a history of gingivitis and periodontal disease despite regular dental appointments. She is the daughter of a consanguineous marriage.

Investigations :

Hb 12.3 g/dl

WCC 21.8 X 10<sup>9</sup>/l

plts 250 X 10<sup>9</sup>/l

U&Es normal

LFTs normal

C3 145 mg/dl (90-180)

C4 21 mg/dl (10-40)

CH50 89% (80-100)

RF negative

ANA negative

ENA negative

What is the most likely investigation which will clinch the diagnosis?

Options

A. Bone marrow biopsy

B. Rocket immunoelectrophoresis of complement proteins

C. FACS analysis of leucocytes

D. Protein electrophoresis of immunoglobulins

E. Skin biopsy

No.: 13

C

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No.: 14

A 15-year-old boy presents with a staphylococcus aureus pneumonia. He has had several similar pneumonias in the past and developed a bronchopleural fistula. He has a history of asthma and hay fever. He is noted to have eczema, a kyphoscoliosis and several cold skin abscesses .

Investigations :

Hb 12.3 g/dl

WCC 11.2 X 10<sup>9</sup>/l

platelets 219 X 10<sup>9</sup>/l

U&Es normal

LFTs normal

CRP 11 g/l

ESR 89 mm in the first hour

Albumin 36 g/l

total protein 98 g/l

C3 135 mg/dl (90-180)

C4 31 mg/dl (10-40)

CH50 91% (80-100)

RF negative

ANA negative

ENA negative

Which test would you perform to confirm your diagnosis?

Options

A. Wright's stain on leucocytes to look for neutrophil granules

B. NBT test for superoxide/hydrogen peroxide production by neutrophils

C. FACS analysis of leucocytes

D. Protein electrophoresis of immunoglobulins

E. Skin biopsy

No.: 14

D

HIE (Hyper IgE syndrome) or Job's syndrome is an autosomal dominant condition characterised by coarse facies, kyphoscoliosis, osteoporosis, atopy and eczema. Patients develop recurrent sinopulmonary and cutaneous infections that tend to be much less inflamed than appropriate for the degree of infection (cold abscesses). The IgE level is markedly raised and is reflected here by a high total protein and an associated elevated ESR.





No.: 15

A 25-year-old man is admitted with increasing shortness of breath and fatigue. He had been admitted the previous month following an episode of haemoptysis and dyspnoea. A spiral CT scan and d-dimers were negative at that time. Investigations: Hb 10.3g/dl, MCV 78fl WCC  $11.2 \times 10^9/l$ , platelets  $219 \times 10^9/l$ . Na 134mmol/l K 5.7mmol/l urea 21.8mmol/l creatinine 312mmol. LFTs normal CRP 11g/l ESR 45 mm in the first hour Albumin 31g/l total protein 81g/l RF negative, ANA negative, ENA negative ANCA weak positive anti-MPO 23% urinalysis 3+ blood 2+ protein CXR-hilar and bibasal interstitial shadowing  $pO_2$  8.1kPa  $pCO_2$  6.1kPa  $O_2$  sats 91% on air KCO 120% predicted What is the most likely diagnosis :

Options

- A. Pulmonary vasculitis secondary to SLE
- B. Wegener's granulomatosis
- C. Goodpasture's syndrome
- D. Renal vein thrombosis and pulmonary embolism
- E. Legionnaires disease

No.: 15

Anti-GBM disease commonly presents with haematuria, nephritic urinary sediment, sub-nephrotic proteinuria and rapidly progressive renal failure over weeks, with or without pulmonary haemorrhage. When pulmonary haemorrhage occurs, it usually predates nephritis by weeks or months. Pulmonary changes can vary from fluffy pulmonary infiltrates on CXR to catastrophic pulmonary haemorrhage.

The gold standard for diagnosis is renal biopsy which shows diffuse proliferative GN with focal necrotizing lesions and crescent formation. Immunofluorescence shows linear deposition of IgG and complement. Anti-GBM antibodies can be detected by serology.

No.: 16

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Options

- A. Bronchoscopy with broncho-alveolar lavage
- B. V/Q scan
- C. Renal biopsy
- D. High resolution CT scan of chest
- E. D-dimer

No.: 16

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The gold standard for diagnosis is renal biopsy which shows diffuse proliferative GN with focal necrotizing lesions and crescent formation. Immunofluorescence shows linear deposition of IgG and complement. Anti-GBM antibodies can be detected by serology.





No.: 17

A 56-year-old woman with a 30 year history of Sjogren's syndrome commences chemotherapy for an associated lymphoma. One week later she develops an acutely painful right knee, any movement of the knee is very painful and she is pyrexial at 38°C. Investigations: Hb 10.7g/dl, platelets 430 X 10<sup>9</sup>/l, WCC 8.9 X 10<sup>9</sup>/l, ESR 78mm in the first hour, CRP 86 g/l, U&Es normal. X-ray of the knee reveals a joint effusion but no bony abnormality. What is the most likely diagnosis?

Options

- A. Hemarthrosis
- B. Septic arthritis
- C. Acute gout
- D. Acute synovitis secondary to Sjogren's syndrome
- E. Calcium pyrophosphate disease

No.: 17

The commencement of chemotherapy with the associated rapid and massive cell turnover is a well recognised precipitant for gout. The correct treatment is with an NSAID or colchicine. Allopurinol will prolong an acute attack of gout. Septic arthritis is a possibility in an immunosuppressed patient with fever and joint pain. Joint aspiration with MSC examination will be diagnostic. Obviously blood culture and uric acid levels are mandatory.

No.: 18

A 56-year-old woman with a 30 year history of Sjogren's syndrome commences chemotherapy for an associated lymphoma. One week later she develops an acutely painful right knee, any movement of the knee is very painful and she is pyrexial at 38°C. Investigations : Hb 10.7g/dl , platelets 430 X 10<sup>9</sup>/l , WCC 8.9 X 10<sup>9</sup>/l . ESR 78mm in the first hour , CRP 86 g/l U&Es normal X-ray of the knee reveals a joint effusion but no bony abnormality .

What investigation will be the most informative :

Options

- A. MRI scan of knee
- B. Joint aspirate and microscopy under polarised light
- C. Joint aspirate and culture
- D. Clotting screen
- E. Complement levels

No.: 18

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<p>No.: 19</p> <p>A 56-year-old woman with a 30 year history of Sjogren's syndrome commences chemotherapy for an associated lymphoma. One week later she develops an acutely painful right knee, any movement of the knee is very painful and she is pyrexial at 38°C. Investigations: Hb 10.7g/dl, platelets 430 X 10<sup>9</sup>/l, WCC 8.9 X 10<sup>9</sup>/l, ESR 78mm in the first hour, CRP 86 g/l. X-ray of the knee reveals a joint effusion but no bony abnormality. What treatment is indicated?</p> <p>Options</p> <p>A. Diclofenac B. Allopurinol C. Flucloxacillin and fusidic acid D. Fresh frozen plasma E. Prednisolone</p>	<p>No.: 19</p> <p>A</p> <p>The commencement of chemotherapy with the associated rapid and massive cell turnover is a well recognised precipitant for gout. The correct treatment is with an NSAID or colchicine. Allopurinol will prolong an acute attack of gout. Septic arthritis is a possibility in an immunosuppressed patient with fever and joint pain. Joint aspiration with MSC examination will be diagnostic. Obviously blood culture and uric acid levels are mandatory.</p>
<p>No.: 20</p> <p>A 21-year-old woman present with malaise, fever, painful swelling of the small joints of the hands and pleuritic chest pain. The only past medical history of note is acne treated with minocycline. Examination reveals synovitis and respiratory examination is normal. CXR is unremarkable. Investigations: Hb 10.9g/dl, platelets 310 X 10<sup>9</sup>/l, WCC 7.8 X 10<sup>9</sup>/l, ESR 81mm in the first hour, CRP 2 g/l, U&amp;Es and LFTs normal, RF 1/40, ANA 1/640, ENA negative, anti-dsDNA negative, anti-Smith negative, anti-histone 1/320. What is the most likely diagnosis?</p> <p>Options</p> <p>A. Systemic sclerosis B. Systemic lupus erythematosus C. Drug induced lupus D. Mixed connective tissue disease E. Sarcoidosis</p>	<p>No.: 20</p> <p>C</p> <p>The presence of high titre anti-histone antibodies is compatible with a diagnosis of drug induced lupus and minocycline has been recognised as one of the offending medications.</p> <p>Other drugs that can cause an SLE-like syndrome include procainamide, hydralazine, isoniazid, chlorpromazine, D-penicillamine, methyldopa, interferon-alpha, and possibly oral contraceptives.</p> <p>Genetic factors play a role by determining drug acetylation rates- slow acetylation predisposes to the syndrome. Arthralgias, polyarthritis and pleuropericarditis occur. Renal and CNS disease is rare. ANA is always positive and anti-histone Ab is present in 95% of cases. Antibodies to dsDNA and decreased complement levels are rare- this helps to distinguish the syndrome from idiopathic SLE. The treatment is withdrawal of the drug.</p>



No.: 21

A 21-year-old woman present with malaise, fever, painful swelling of the small joints of the hands and pleuritic chest pain. The only past medical history of note is acne treated with minocycline. Examination reveals synovitis and respiratory examination is normal. CXR is unremarkable. Investigations: Hb 10.9g/dl, platelets 310 X 10<sup>9</sup>/l, WCC 7.8 X 10<sup>9</sup>/l, ESR 81mm in the first hour, CRP 2 g/l, U&Es and LFTs normal, RF 1/40, ANA 1/640, ENA negative, anti-dsDNA negative, anti-Smith negative, anti-histone 1/320. What treatment is indicated?

Options

- A. Diclofenac
- B. Stop minocycline
- C. Hydroxychloroquine
- D. Azathioprine
- E. Prednisolone

No.: 21

B



No.: 22

A 31-year-old woman presents with painful swelling of both ankles, low grade fever and non-expectorant cough. Examination reveals synovitis of both ankles and painful raised erythematous lesions on both shins. Investigations: Hb 10.6g/dl, platelets 356 X 10<sup>9</sup>/l, WCC 10.2 X 10<sup>9</sup>/l, ESR 65mm in the first hour, CRP 34 g/l, U&Es normal, Calcium 2.63, Albumin 39 g/l, ASO titre <200 iu, RF 1/40, ANA 1/40 speckled pattern, ENA negative. What should be your next investigation?

Options

- A. Bronchoscopy
- B. Blood cultures
- C. CXR
- D. Serum ACE levels
- E. Isotope bone scan

No.: 22

C

Loefgren syndrome (acute sarcoidosis) typically occurs in young women and consists of arthritis (usually of the ankles), erythema nodosum and bi-hilar lymphadenopathy. It is associated with an acute phase response and pyrexia with cough. The serum ACE level is commonly raised and can be used to monitor the course of the disease, but Serum ACE is a non-specific marker and is raised in many other conditions apart from sarcoidosis.





<p>No.: 23</p> <p>A 31-year-old woman presents with painful swelling of both ankles, low grade fever and non-expectorant cough. Examination reveals synovitis of both ankles and painful raised erythematous lesions on both shins. Investigations: Hb 10.6g/dl, platelets 356 X 10<sup>9</sup>/l, WCC 10.2 X 10<sup>9</sup>/l, ESR 65mm in the first hour, CRP 34 g/l, U&amp;Es normal Calcium 2.63 Albumin 39 g/l ASO titre &lt;200iuRF 1/40 ANA 1/40 speckled pattern ENA negative. What is the most likely diagnosis?</p> <p>Options</p> <p>A. Seronegative rheumatoid arthritis B. Systemic lupus erythematosus C. Infective endocarditis D. Adult onset Still's disease E. Lofgren syndrome</p>	<p>No.: 23</p> <p>E</p> <p>Loefgren syndrome (acute sarcoidosis) typically occurs in young women and consists of arthritis (usually of the ankles), erythema nodosum and bi-hilar lymphadenopathy. It is associated with an acute phase response and pyrexia with cough. The serum ACE level is commonly raised and can be used to monitor the course of the disease, but Serum-ACE is a non-specific marker and is raised in many other conditions apart from sarcoidosis.</p>
<p>No.: 24</p> <p>A 51-year-old man with a 30 year history of ankylosing spondylitis, treated with methotrexate and phenylbutazone, presents with increasing shortness of breath. On examination he has pitting ankle oedema, crackles at his lung apices and lung bases and hepatosplenomegaly. Investigations: sodium 132 mmol/l, potassium 5.6 mmol/l, urea 14.1 mmol/l, creatinine 201 mmol/l Albumin 29g/l, total protein 78g/l, CRP 34g/l, ESR 56 mm in the first hour. CXR shows cardiomegaly and pulmonary oedema. USS shows hepato-splenomegaly with large kidneys but no evidence of obstruction. What is the diagnosis?</p> <p>Options</p> <p>A. Membranous glomerulonephritis B. Lymphoma from previous spinal radiotherapy C. Phenylbutazone related nephropathy D. Methotrexate induced cardiomyopathy E. Reactive amyloidosis</p>	<p>No.: 24</p> <p>E</p> <p>Ankylosing spondylitis is a well recognised cause of reactive amyloidosis because of the persistently elevated CRP. This patient has developed nephrotic syndrome and renal compromise. The SAP scan is a radiolabelled nuclear medicine scan that quantifies the amyloid load and distribution.</p> <p>Amyloidosis is a heterogeneous group of disorders characterized by the extracellular deposition of fibrillar protein in organs and tissues. Amyloidosis can be hereditary or acquired and can be focal, localised or systemic. It is classified according to the biochemical nature of the amyloid precursor proteins. Amyloid A Amyloidosis (AA)(reactive or secondary amyloidosis) occurs as complication of chronic inflammation and presents with systemic disease. There is involvement of the renal tract and proteinuria is often the first symptom. Frank nephrotic syndrome can develop. Hypertension is rare. Hepatic involvement with associated hepatomegaly can be present. Gastrointestinal tract symptoms are common in secondary amyloidosis and can result from infiltration of the GIT or the associated autonomic nervous system. Symptoms include ulceration, malabsorption, haemorrhage, protein loss, diarrhoea and those of obstruction. Cardiac involvement is rare in secondary amyloidosis and the signs in this patient are probably due to fluid overload.</p> <p>Diagnosis is confirmed by histology. The SAP scan is also useful.</p>





No.: 25

A 51-year-old man with a 30 year history of ankylosing spondylitis, treated with methotrexate and phenylbutazone, presents with increasing shortness of breath. On examination he has pitting ankle oedema, crackles at his lung apices and lung bases and hepatosplenomegaly. Investigations: sodium 132 mmol/l, potassium 5.6 mmol/l, urea 14.1 mmol/l, creatinine 201 mmol/l Albumin 29g/l, total protein 78g/l, CRP 34g/l, ESR 56 mm in the first hour. CXR shows cardiomegaly and pulmonary oedema. USS shows hepato-splenomegaly with large kidneys but no evidence of obstruction. Which is the most appropriate investigation to confirm the diagnosis:

Options

- A. Bone marrow biopsy
- B. ECHO
- C. SAP scan
- D. Intravenous urogram
- E. Analysis of urinary sediment

No.: 25

C

Ankylosing spondylitis is a well recognised cause of reactive amyloidosis because of the persistently elevated CRP. This patient has developed nephrotic syndrome with renal failure. The SAP scan is a radiolabelled nuclear medicine scan that quantifies the amyloid load and distribution .

Amyloidosis is a heterogeneous group of disorders characterized by the extracellular deposition of fibrillar protein in organs and tissues. Amyloidosis can be hereditary or acquired and can be focal, localised or systemic. It is classified according to the biochemical nature of the amyloid precursor proteins. Amyloid A Amyloidosis (AA)(reactive or secondary amyloidosis) occurs as complication of chronic inflammation and presents with systemic disease. There is involvement of the renal tract and proteinuria is often the first symptom. Frank nephrotic syndrome can develop. Hypertension is rare. Hepatic involvement with associated hepatomegaly can be present. Gastrointestinal tract symptoms are common in secondary amyloidosis and can result from infiltration of the GIT or the associated autonomic nervous system. Symptoms include ulceration, malabsorption, haemorrhage, protein loss, diarrhoea and those of obstruction. Cardiac involvement is rare in secondary amyloidosis and the signs in this patient are most likely due to fluid overload .

Diagnosis is confirmed by histology. The SAP scan is also useful.



No.: 26

A 27-year-old woman is admitted with herpes zoster and a lobar pneumonia. She has had four previous hospitalisations with pneumonia in the last five years, although there was no history of recurrent chest infections in childhood. She has a past medical history of a non-erosive seronegative arthritis for the last five years. On systematic enquiry she gave a history of intermittent diarrhoea since her late teens. There is no relevant family history and both her children are well with no history of recurrent infections. Examination is unremarkable apart from her being thin. Investigations: Hb 11.5g/dl, normal white cell count and differential U&Es and LFTs normal ANA and RF negative. Further results: HIV negative, anti-gliadin antibody negative, anti-scl70 negative IgG 3.15g/l (7.2-19) IgA 0.11g/l (0.8-5.0) IgM 0.66 (0.5-2.0). Gastro investigations revealed Giardiasis on jejunal aspirate. What is the likely diagnosis :

Options

- A. Bruton's disease
- B. Selective IgA deficiency
- C. CREST syndrome
- D. Common variable immunodeficiency (CVID)
- E. Enteropathic arthropathy

No.: 26

D

CVID is a heterogeneous group of disorders presenting in childhood or adult life. In these patients, cell-mediated and antibody deficiency are combined in variable amounts. Immunological findings are variable, but it is the humoral immune deficits that usually present clinically. Patients present with recurrent pyogenic infections- usually affecting the sinopulmonary system, and in some cases susceptibility to infections with *Pneumocystis carinii*, viruses or *Candida*. *Mycoplasma* and *ureaplasma* infections can lead to arthritis, pneumonia or genitourinary infections. Malabsorption secondary to infection with *Giardia Lamblia* can be troublesome. Autoimmune disease occurs in about 10% of cases, usually immune thrombocytopenia, haemolytic anaemia or SLE. There is an increased incidence of malignancy. Granulomatous lesions have been reported in lymphoid tissues, solid organs, and skin and share many clinical properties typical of sarcoidosis. In CVID, patients have low levels of IgG and IgA with normal or slightly low levels of IgM and usually normal B-cell numbers. About one-third of patients have some degree of abnormality of cell-mediated immunity. Affected women give birth to normal offspring.



No.: 27

A 71-year-old woman presents with a four month history of weakness, malaise, unsteadiness, dizziness, headaches and several episodes of epistaxis. On examination she was pale but otherwise normal. Investigations: Hb 10.3g/dl, WCC 11.2 X 10<sup>9</sup>/l, platelets 219 X 10<sup>9</sup>/l. Na 134 mmol/l K 4.3 mmol/l urea 6.8 mmol/l creatinine 112mmol. AST 35 u/l, bilirubin 15 mmol/l, alkaline phosphatase 98 u/l Albumin 31 g/l total protein 110 g/l CRP 11g/l ESR 112 mm in the first hour. Which of the following investigations is likely to be informative :

Options

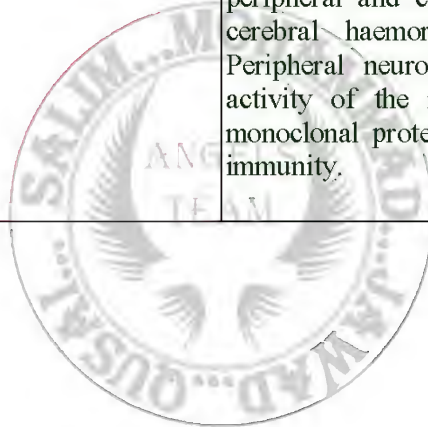
- A. Serum ANA
- B. CT brain
- C. MRI posterior fossa
- D. Serum immunoglobulins and protein electrophoresis
- E. Vestibular function tests

No.: 27

D

Waldenstrom's macroglobulinaemia can present in this manner with hyperviscosity symptoms. The correct treatment is urgent plasmapheresis .

Waldenstrom's macroglobulinaemia is a lymphoproliferative disorder- a plasma cell dyscrasia which results in a monoclonal IgM gammopathy. The bone marrow, lymph nodes, and spleen are the organs most often involved. Pulmonary involvement can also occur. Waldenstrom's macroglobulinemia has features in common with myeloma, lymphoma and chronic lymphocytic leukemia from which it can be differentiated by serum protein electrophoresis which reveals very high levels of monoclonal IgM. The increased plasma viscosity (due to aggregation of rbc by IgM) presents as mucosal haemorrhage e.g. epistaxis; visual abnormalities due to retinal bleeding; as well as peripheral and central neurological problems including cerebral haemorrhage, seizures, chorea and coma. Peripheral neuropathy can be caused by anti-myelin activity of the monoclonal IgM protein. The excess monoclonal protein in the serum interferes with normal immunity.







No.: 28

A 71-year-old woman presents with a four month history of weakness, malaise, unsteadiness, dizziness, headaches and several episodes of epistaxis. On examination she was pale but otherwise normal. Investigations :

Hb 10.3g/dl ,  
WCC 11.2 X 10<sup>9</sup>/l ,  
platelets 219 X 10<sup>9</sup>/l .  
Na 134 mmol/l  
K 4.3 mmol/l  
urea 6.8 mmol/l  
creatinine 112mmol .  
AST 35 u/l ,  
bilirubin 15 mmol/l ,  
alkaline phosphatase 98 u/l  
Albumin 31 g/l  
total protein 110 g/l  
CRP 11g/l  
ESR 112 mm in the first hour

Further results: IgG 9.9g/l (7.2-19)

IgA 1.3g/l (0.8-5.0)

IgM 43g/l (0.5-2.0) with an IgM paraprotein level of 41g/l .

She then has an episode of loss of consciousness with a witnessed grand mal seizure. What should your next investigation be :

Options

- A. EEG
- B. Further CT brain
- C. Plasma viscosity
- D. Bone marrow biopsy
- E. Carotid doppler ultrasound scan

No.: 28

C

Waldenstrom's macroglobulinaemia can present in this manner with hyperviscosity symptoms. The patient has just had a grand mal seizure, and therefore it is important to establish the direct cause of the seizure. One should first establish whether there is any abnormality that can be corrected promptly to prevent further seizure activity. Although a raised plasma viscosity is non specific and can be caused by a variety of pathologies, this will require immediate correction to stabilise the patient. It is imperative to measure plasma viscosity, however a cerebral CT would also be performed. Following this, bone marrow biopsy would be performed to establish the diagnosis. The question does not ask for a diagnostic investigation. Rather it asks one to prioritise one's investigation what is the next investigation? In this case, it would be more important to establish immediately treatable biochemical or other abnormalities, after which specific diagnostic investigations can follow .

The correct treatment is urgent plasmapheresis .

Waldenstrom's macroglobulinaemia is a lymphoproliferative disorder- a plasma cell dyscrasia which results in a monoclonal IgM gammopathy. The bone marrow, lymph nodes, and spleen are the organs most often involved. Pulmonary involvement can also occur. Waldenstrom's macroglobulinemia has features in common with myeloma, lymphoma and chronic lymphocytic leukemia from which it can be differentiated by serum protein electrophoresis which reveals very high levels of monoclonal IgM. The increased plasma viscosity (due to aggregation of rbc by IgM) presents as mucosal haemorrhage e.g. epistaxis; visual abnormalities due to retinal bleeding; as well as peripheral and central neurological problems including cerebral haemorrhage, seizures, chorea and coma. Peripheral neuropathy can be caused by anti-myelin activity of the monoclonal IgM protein. The excess monoclonal protein in the serum interferes with normal immunity.





No.: 29

A 65-year-old IDDM has a cadaveric renal transplant for end-stage renal failure. He is maintained on insulin, prednisolone, azathioprine, cyclosporin and septrin .

Three months later he presents with dyspnoea, fever and fatigue. On examination he has bilateral lung crackles and hepatosplenomegaly .

Investigations :

Hb 8.9 g/l

WCC 1.2 X 10<sup>9</sup>/l

platelets 410 X 10<sup>9</sup>/l

Sodium 131 mmol/l

potassium 5.2 mmol/l

urea 31 mmol/l

creatinine 321 mmol/l

LFTs normal

Blood cultures negative at 48 hours

CXR bilateral diffuse interstitial shadowing

bone marrow bx-normal

myeloid erythroid maturation

negative for AAFB and fungi

What would be the most useful diagnostic investigation?

Options

A. High resolution CT scan of chest

B. Bronchoscopy

C. ECHO

D. Heaf test

E. HIV test

No.: 29

B

About 1-10% of transplants are complicated by EBV-induced lymphoproliferative disease. Some immunosuppressants are associated with EBV reactivation especially cyclosporin, antithymocyte globulin and monoclonal anti-T cell antibodies. T-cell-mediated immunity is of paramount importance in the killing of EBV-infected B-cells and thus in the control of EBV-infections. When T-cell immunity is compromised, these EBV-infected cells proliferate and infiltrate lymph nodes and multiple organs. Patients present with fever, adenopathy and features resembling disseminated lymphoma. Pathology shows B-cell hyperplasia and often polyclonal and monoclonal B-cell lymphomas.





No.: 30

A 65-year-old IDDM has a cadaveric renal transplant for end-stage renal failure. He is maintained on insulin, prednisolone, azathioprine, cyclosporin and septrin. Three months later he presents with dyspnoea, fever and fatigue. On examination he has bilateral lung crackles and hepatosplenomegaly. Investigations: Hb 8.9 g/l WCC  $1.2 \times 10^9/l$ , platelets  $410 \times 10^9/l$ . Sodium 131 mmol/l, potassium 5.2 mmol/l, urea 31 mmol/l, creatinine 321 mmol/l LFTs normal. Blood cultures negative at 48 hours CXR bilateral diffuse interstitial shadowing bone marrow bx-normal myeloid erythroid maturation, negative for AAFB and fungi Bronchoscopy with transbronchial biopsy showed no histological abnormality and was negative for AAFB and PCP. An open lung biopsy showed fibrinous pneumonia with obstructive bronchiolitis associated with a dense cellular infiltrate of highly atypical lymphoid cells containing pleomorphic nuclei. What is the likely diagnosis :

Options

- A. Bacterial pneumonia
- B. Reactivation of TB
- C. Fungal infection
- D. CMV
- E. EBV induced lymphoproliferative disease

No.: 30

E

About 1-10% of transplants are complicated by EBV-induced lymphoproliferative disease. Some immunosuppressants are associated with EBV reactivation especially cyclosporin, antithymocyte globulin and monoclonal anti-T cell antibodies. T-cell-mediated immunity is of paramount importance in the killing of EBV-infected B-cells and thus in the control of EBV-infections. When T-cell immunity is compromised, these EBV-infected cells proliferate and infiltrate lymph nodes and multiple organs. Patients present with fever, adenopathy and features resembling disseminated lymphoma. Pathology shows B-cell hyperplasia and often polyclonal and monoclonal B-cell lymphomas.





No.: 31

A 71-year-old woman with long standing rheumatoid arthritis is on D-penicillamine and Celecoxib. She is referred from her GP with a one week history of intermittent diplopia. On examination she has changes of RA in her hands and minimally active synovitis. Neurological examination reveals mild weakness of the upper limbs, more pronounced after exercise with no wasting nor fasciculation. Reflexes are present and symmetrical with reinforcement. Some fine end-expiratory crackles are present at both lung bases. Investigations: Hb 10.9 g/l WCC 4.2 X 10<sup>9</sup>/l, platelets 105 X 10<sup>9</sup>/l. Sodium 131 mmol/l, potassium 5.2 mmol/l, urea 9.7 mmol/l, creatinine 171 mmol/l, bilirubin 17 mmol/l, AST 36 mmol/l, Alkaline phosphatase 110 mmol/l Calcium 2.20 mmol/l Albumin 29 g/l Protein 83 g/l urinalysis 2+ proteinuria. What should be your next investigation :

Options

- A. High resolution CT chest
- B. Renal biopsy
- C. Acetylcholine receptor antibodies
- D. 24 hour urine collection for proteinuria and creatinine clearance
- E. Serum ANCA

No.: 31

**C**

Drug induced myasthenia gravis is more likely than myasthenia gravis, she has signs of side effects of penicillamine -renal impairment, thrombocytopenia and proteinuria. Approximately 1 to 7% of patients on penicillamine will develop myasthenia gravis. Penicillamine has been reported to induce the formation of anti-Acetyl Choline Receptor antibodies in 90% of patients who develop myasthenia gravis while on this agent. Those who develop penicillamine-induced myasthenia gravis typically have a mild form of the disease, often limited to the extraocular muscles. Presentation occurs from 2 to 12 months after therapy has begun. Most patients have resolution of the disease within 2 to 6 months following discontinuation .

Rheumatoid lung is the most likely cause of the respiratory signs in this patient .

Rheumatoid arthritis presents with a wide range of pulmonary manifestations: pleural effusions (most common), nodular lung disease, diffuse interstitial fibrosis, pulmonary vasculitis, alveolar haemorrhage, obstructive pulmonary disease and infections .

Pulmonary effusions can be unilateral or bilateral. They are usually exudative containing mononuclear cells and can contain rheumatoid factor. Pulmonary nodules are rare and usually asymptomatic but can occasionally present with haemoptysis. They are usually multiple and bilateral. Diffuse interstitial fibrosis occurs in +/-40% of patients. It is most common in patients with subcutaneous nodules and high titres of rheumatoid factor. Bibasal crepitations on auscultation are typical.



No.: 32

A 71-year-old woman with long standing rheumatoid arthritis is on D-penicillamine and Celecoxib. She is referred from her GP with a one week history of intermittent diplopia. On examination she has changes of RA in her hands and minimally active synovitis. Neurological examination reveals mild weakness of the upper limbs, more pronounced after exercise with no wasting nor fasciculation. Reflexes are present and symmetrical with reinforcement. Some fine end-expiratory crackles are present at both lung bases. Investigations: Hb 10.9 g/l WCC 4.2 X 10<sup>9</sup>/l, platelets 105 X 10<sup>9</sup>/l. Sodium 131 mmol/l, potassium 5.2 mmol/l, urea 9.7 mmol/l, creatinine 171 mmol/l, bilirubin 17 mmol/l, AST 36 mmol/l, Alkaline phosphatase 110 mmol/l Calcium 2.20 mmol/l Albumin 29 g/l Protein 83 g/l urinalysis 2+ proteinuria. What is the likely cause of the diplopia :

Options

- A. Mononeuritis multiplex
- B. Myasthenia gravis
- C. Drug induced myasthenia
- D. Drug induced lupus
- E. Grave's disease

No.: 32

**C**

Drug induced myasthenia gravis is more likely than myasthenia gravis, she has signs of side effects of penicillamine -renal impairment, thrombocytopenia and proteinuria. Approximately 1 to 7% of patients on penicillamine will develop myasthenia gravis. Penicillamine has been reported to induce the formation of anti-Acetyl Choline Receptor antibodies in 90% of patients who develop myasthenia gravis while on this agent. Those who develop penicillamine-induced myasthenia gravis typically have a mild form of the disease, often limited to the extraocular muscles. Presentation occurs from 2 to 12 months after therapy has begun. Most patients have resolution of the disease within 2 to 6 months following discontinuation .

Rheumatoid lung is the most likely cause of the respiratory signs in this patient .

Rheumatoid arthritis presents with a wide range of pulmonary manifestations: pleural effusions (most common), nodular lung disease, diffuse interstitial fibrosis, pulmonary vasculitis, alveolar haemorrhage, obstructive pulmonary disease and infections .

Pulmonary effusions can be unilateral or bilateral. They are usually exudative containing mononuclear cells and can contain rheumatoid factor. Pulmonary nodules are rare and usually asymptomatic but can occasionally present with haemoptysis. They are usually multiple and bilateral. Diffuse interstitial fibrosis occurs in +/-40% of patients. It is most common in patients with subcutaneous nodules and high titres of rheumatoid factor. Bibasal crepitations on auscultation are typical.





No.: 33

A 71-year-old woman with long standing rheumatoid arthritis is on D-penicillamine and Celecoxib. She is referred from her GP with a one week history of intermittent diplopia. On examination she has changes of RA in her hands and minimally active synovitis. Neurological examination reveals mild weakness of the upper limbs, more pronounced after exercise with no wasting nor fasciculation. Reflexes are present and symmetrical with reinforcement. Some fine end-expiratory crackles are present at both lung bases. Investigations: Hb 10.9 g/l WCC 4.2 X 10<sup>9</sup>/l, platelets 105 X 10<sup>9</sup>/l. Sodium 131 mmol/l, potassium 5.2 mmol/l, urea 9.7 mmol/l, creatinine 171 mmol/l, bilirubin 17 mmol/l, AST 36 mmol/l, Alkaline phosphatase 110 mmol/l Calcium 2.20 mmol/l Albumin 29 g/l Protein 83 g/l urinalysis 2+ proteinuria. What is the most likely cause for the respiratory signs :

Options

- A. Recurrent aspiration
- B. Rheumatoid lung
- C. Drug induced fibrosis
- D. Cryptogenic fibrosing alveolitis
- E. Invasive aspergillosis

No.: 33

B

Rheumatoid lung is the most likely cause of the respiratory signs in this patient .

Rheumatoid arthritis presents with a wide range of pulmonary manifestations: pleural effusions (most common), nodular lung disease, diffuse interstitial fibrosis, pulmonary vasculitis, alveolar haemorrhage, obstructive pulmonary disease and infections .

Pulmonary effusions can be unilateral or bilateral. They are usually exudative containing mononuclear cells and can contain rheumatoid factor. Pulmonary nodules are rare and usually asymptomatic but can occasionally present with haemoptysis. They are usually multiple and bilateral. Diffuse interstitial fibrosis occurs in +/-40% of patients. It is most common in patients with subcutaneous nodules and high titres of rheumatoid factor. Bibasal crepitations on auscultation are typical .

The drugs taken by this patient do not typically cause pulmonary fibrosis .

Drug induced myasthenia gravis is however the most likely cause of diplopia in this patient - more likely than myasthenia gravis. She has signs of other side effects of penicillamine- renal impairment, thrombocytopenia and proteinuria. Approximately 1 to 7% of patients on penicillamine will develop myasthenia gravis. Penicillamine has been reported to induce the formation of anti-Acetyl Choline Receptor antibodies in 90% of those who develop myasthenia gravis while on treatment. Penicillamine-induced myasthenia is typically mild and often limited to the extraocular muscles. Initial presentation varies occurring from 2 to 12 months after beginning of therapy. Most patients have resolution of the disease within 2 to 6 months following discontinuation.



<p>No.: 34</p> <p>A 52-year-old woman complains of dysphagia, recurrent episodes of gritty painful eyes and generalised pruritis. She has steatorrhoea. On examination she is not jaundiced and is noticed to have peri-orbital xanthelasma. Investigations: Hb 10.9 g/l WCC 4.2 X 10<sup>9</sup>/l, plats 145 X 10<sup>9</sup>/l. ESR 32 mm in the first hour CRP 15g/l. Which of the following tests would be most useful :</p> <p>Options</p> <p>A. Liver function tests B. Hepatitis serology C. Anti-mitochondrial antibodies D. ANA E. Fasting lipid profile</p>	<p>No.: 34</p> <p><b>C</b></p> <p>%90of patients with PBC are women present in their fifth decade . Aetiology is unknown. The pruritis precedes the jaundice. PBC is associated with Sjogren's syndrome, polyarthralgia, autoimmune thyroiditis and hypercholesterolaemia. Keratoconjunctivitis sicca is present in 70% of cases . Serum antimitochondrial antibodies are usually positive . Liver biopsy confirms the diagnosis and shows lymphocytic and plasma cell infiltrates often with granuloma formation. At a later stage, there is portal tract fibrosis and cirrhosis.</p>
<p>No.: 35</p> <p>A 52-year-old woman complains of dysphagia, recurrent episodes of gritty painful eyes and generalised pruritis. She has steatorrhoea. On examination she is not jaundiced and is noticed to have peri-orbital xanthelasma. Investigations: Hb 10.9 g/l WCC 4.2 X 10<sup>9</sup>/l, plats 145 X 10<sup>9</sup>/l. ESR 32 mm in the first hour CRP 15g/l. What is the likely diagnosis :</p> <p>Options</p> <p>A. Sjogren's syndrome B. Primary biliary cirrhosis C. Chronic active hepatitis D. Systemic sclerosis E. Ulcerative colitis</p>	<p>No.: 35</p> <p><b>B</b></p> <p>%90of patients with PBC are women present in their fifth decade . Aetiology is unknown. The pruritis precedes the jaundice. PBC is associated with Sjogren's syndrome, polyarthralgia, autoimmune thyroiditis and hypercholesterolaemia. Keratoconjunctivitis sicca is present in 70% of cases . Serum antimitochondrial antibodies are usually positive . Liver biopsy shows lymphocytic and plasma cell infiltrates often with granuloma formation and at a later stage, portal tract fibrosis and cirrhosis.</p>



<p>No.: 36</p> <p>A 29-year-old woman presents to casualty with difficulty in breathing. On clinical examination she has bibasal crepitations, with a collapsed nasal bridge, painful swollen MCPs and wrists, and episcleritis. She has a history of worsening tinnitus, vertigo and decreased hearing. CXR confirms pulmonary oedema. Urinalysis negative for protein, blood, glucose. Results: Hb 9.8g/dl, WCC 10.9 X 10<sup>9</sup>/l, platelets 540 X 10<sup>9</sup>/l. Biochemistry profile normal. CRP 19g/l, ESR 47 mm in the first hour. The patient's voice is noticed to be hoarse and she develops a persistent cough and marked wheeze un-responsive to beta-agonists. What is the diagnosis :</p> <p>Options</p> <p>A. Congenital syphilis          B. Wegener's granulomatosis          C. Relapsing polychondritis          D. Noonan's syndrome          E. Progressive systemic sclerosis</p>	<p>No.: 36</p> <p>C</p> <p>Relapsing polychondritis is an auto-immune condition affecting cartilage. It involves cartilage destruction of ears, nose, trachea and larynx. Biopsy of cartilage will show lysis of the cartilage and inflammatory cells. Other manifestations include fever, uveitis, deafness and involvement of aortic valve causing aortic insufficiency as is manifested by pulmonary oedema and crepitations in this case. In this case the condition has involved the nasal cartilage causing a collapsed nasal bridge and has also involved the Wegener's granulomatosis does not affect the aortic valve/root. Congenital syphilis which could cause a collapsed nasal bridge and aortitis would not have the other features in this patient which satisfy the diagnostic criteria for RP. Laryngomalacia is one of the most serious complications of RP with a significant mortality.</p>
<p>No.: 37</p> <p>A 12-year-old boy presented with abdominal pain. He was noted to have a purpuric rash around his ankles. Urine dipstick revealed blood++, protein++, nitrite negative. Urine microscopy revealed no organisms, but red cell casts were seen. Renal biopsy showed epithelial crescents with granular deposits of IgA and C3.</p> <p>In this disease, complement activation :</p> <p>Options</p> <p>A. Does not contribute to the pathology          B. Occurs via the classical pathway          C. Is dependent on factor B          D. Would be unaffected if the patient were factor H-deficient          E. Requires the presence of MBL-associated serine protease (MASP)</p>	<p>No.: 37</p> <p>C</p> <p>The diagnosis is Henoch Schonlein purpura. This is probably an IgA-mediated immune complex nephropathy. Complement is activated by the alternative pathway and therefore requires factor B.</p> <p>Factor H is a soluble inhibitor of C3. It acts as a cofactor for Factor I, which cleaves C3b and C4b-inhibiting C3 and C5 convertase formation. Factor H also has decay accelerating factor (DAF) activity resulting in the destruction of the alternative pathway C3 convertase. Absence of factor H leads to dysregulated alternative pathway activation with consumption of C3 and a predisposition to bacterial infection and glomerulonephritis.</p> <p>MASP is required to activate MBL in the third pathway of complement activation.</p>





No.: 38

A 50-year-old lady with primary biliary cirrhosis is seen in clinic. She complained that as well as her itching, she had developed increasing muscle weakness, and back pain. Her DEXA scan six months ago showed reasonable bone density. Her only other past history was that of two episodes of renal colic requiring hospital admission over the last year .

Na 138  
K 3.3  
Bic 12  
Cl 116  
Urea 6  
Creat. 115  
Bili 32  
Alk. phos 210  
ALT 40  
Cal 2.0  
Phosphate 0.7  
Alb 36

The most likely unifying cause for these abnormalities is :

Options

- A. Liver failure
- B. Osteomalacia
- C. Distal (Type I) Renal Tubular Acidosis
- D. Proximal (Type II) Renal Tubular Acidosis
- E. Renal calculi

No.: 38

C

The most likely unifying cause for these abnormalities is Distal (type I) Renal Tubular Acidosis (RTA) .

The defect is a failure of H<sup>+</sup> excretion in the distal nephron .

The disorder consists of: acidosis (i.e. low bicarbonate), hypokalaemia, inability to lower urine pH below 5.5 despite acidosis and low urinary ammonium excretion .

Causes of distal Type I RTA are :

.1 Primary :( idiopathic )

.2 Secondary

- genetic conditions - Marfan's syndrome, Ehlers-Danlos, Sickle cell disease
- autoimmune disorders - Primary Biliary Cirrhosis, Sjogren's, SLE, CAH, thyroiditis
- hypergammaglobulinaemic states - amyloid, cryoglobulinaemia
- Nephrocalcinosis
- drugs - Amphotericin B, NSAID, Lithium, Toluene
- renal transplant rejection

Chronic acidosis lowers the tubular reabsorption of calcium leading to hypercalciuria, mild secondary hyperparathyroidism and osteomalacia. The acidosis and hypokalaemia increase proximal tubular reabsorption of citrate with low urinary citrate levels. Hypercalciuria, alkaline urine and low urinary citrate predispose to CaPO<sub>4</sub> stones and nephrocalcinosis. There is also a predisposition to UTIs .

Proximal RTA (type II) is rare in adults. The defect is failure of bicarbonate reabsorption in the proximal renal tubule. It presents with: acidosis, hypokalaemia, urine pH above 5.5 and low serum bicarbonate .

There are usually other features of proximal tubular disorder (Fanconi's syndrome) - glycosuria, aminoaciduria, and tubular proteinuria .

Causes of Proximal (type II) Renal Tubular Acidosis are:

.1 Primary : inherited - AD, AR, X-linked

.2 Secondary

- genetic disorders - Cystinosis, Tyrosinaemia, Wilson's disease
- drugs - lead, mercury, streptozotcin
- multiple myeloma
- Vitamin D deficiency/ hyperparathyroidism

As the pH falls, the lowered filtered bicarbonate can be absorbed by the proximal tubule and the distal nephron acidifies urine normally. This distinguishes type I from Type II RTA. Renal stones and nephrocalcinosis are not a feature of Type II RTA .

In Type IV Hyperkalaemic RTA the distal tubular secretion of K<sup>+</sup> and H<sup>+</sup> is abnormal resulting in acidosis with hyperkalaemia. These patients usually have mild renal insufficiency with low plasma rennin and aldosterone levels. Most common causes are diabetic nephropathy and tubulointerstitial disease. The syndrome can also be seen after treatment with NSAID or ACE inhibitors. Low aldosterone levels may be due to adrenal disease. Aldosterone resistance is also a cause of Type IV RTA - most commonly due to obstructive uropathy and sickle cell disease. As in Type II RTA, the urine pH may be low in an acidosis .

All types of RTAs present with a hyperchloraemic metabolic acidosis with a normal anion gap.





<p>No.: 39</p> <p>A 28-year-old man was referred to clinic with a ten-year history of recurrent chest infections. He was diagnosed with common variable immunodeficiency .</p> <p>Which of the following options would best prevent recurrent chest infections?</p> <p>Options</p> <p>A. Chest physiotherapy and postural drainage B. Heart-lung transplantation C. Intermittent courses of antibiotics when the patient feels he is developing a chest infection D. Intravenous immunoglobulin E. Life-long prophylactic antibiotics</p>	<p>No.: 39</p> <p><b>D</b></p> <p>Regular intravenous immunoglobulins (IVIg) is the treatment of choice for common variable immunodeficiency (CVID) .</p> <p>CVID is a heterogeneous group of disorders characterised by defects in antibody production and is the commonest primary immunodeficiency. Recurrent chest infections leading to bronchiectasis is the major cause of morbidity and mortality.</p>
<p>No.: 40</p> <p>A 27-year-old woman is admitted with herpes zoster and a lobar pneumonia. She has had four previous hospitalisations with pneumonia in the last five years, although there was no history of recurrent chest infections in childhood. She has a past medical history of a non-erosive seronegative arthritis for the last five years. On sytematic enquiry she gave a history of intermittent diarrhoea since her late teens. There is no relevant family history and both her children are well with no history of recurrent infections. Examination is unremarkable apart from her being thin .</p> <p>Investigations : Hb 11.5g/dl, normal white cell count and differential U&amp;Es and LFTs normal ANA and RF negative</p> <p>Which investigation could be informative?</p> <p>Options Choose 1</p> <p>A. Anti-gliadin antibodies B. Serum immunoglobulins and protein electrophoresis C. HIV test D. Anti-scl70 autoantibodies E. HLA-B27</p>	<p>No.: 40</p> <p><b>B</b></p> <p>CVID is a heterogeneous group of disorders presenting in childhood or adult life. There are low levels of IgG and IgA with normal or slightly low levels of IgM and normal levels of B cells. About one-third of patients have some degree of abnormality of cell-mediated immunity. Affected women give birth to normal offspring</p>



No.: 41

A 29-year-old man gives a history of recurrent pain and swelling of the left knee. He also describes recurrent episodes of fever, pleuritic pain, and rash. He is then hospitalised with severe headache, photophobia and neck stiffness. He is lucid with a GCS of 15 .

Results: Hb 13.8g/dl, plats 210 X 10<sup>9</sup>/l, WCC 4.9 X 10<sup>9</sup>/l, plasma glucose 6.5 mmol/l

CRP 39g/l, ESR 56 mm in the first hour, RF, ANA, ENA and ANCA negative

CSF analysis; opening pressure 14cmH<sub>2</sub>O, protein 0.6 g/l, RBC 2 /ml, WBC 21/ml (100% lymphocytes), CSF glucose 4.1 mmol/l, no organisms seen on microscopy, 48 hour culture of CSF negative

What is the most likely cause of the headache?

Options Choose 1

- A. Tuberculous meningitis
- B. Herpes encephalitis
- C. Superior sagittal sinus thrombosis
- D. Aseptic meningitis
- E. Subarachnoid haemorrhage

No.: 41

D

Pleuritis can occur in FMF as well as the commoner peritonitis. Aseptic meningitis is a recognised clinical manifestation of FMF. The splenomegaly and proteinuria is due to the development of amyloidosis, a not infrequent consequence of untreated FMF. Amyloidosis can complicate any condition characterised by a prolonged persistent acute phase response. The Marie nostrin gene is only found in 85% of patients with FMF. The SAP scan is a quantative investigation for the extent of amyloidosis. Colchicine given prophylactically in FMF is thought to offer some protection against the development of amyloidosis

No.: 42

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results: hb 13.8g/dl, plats 210 x 10<sup>9</sup>/l, wcc 4.9 x 10<sup>9</sup>/l, plasma glucose 6.5 mmol/l

crp 39g/l, esr 56 mm in the first hour, rf, ana, ena and anca negative

csf analysis; opening pressure 14cmh<sub>2</sub>o, protein 0.6 g/l, rbc 2 /ml, wbc 21/ml (100% lymphocytes), csf glucose 4.1 mmol/l, no organisms seen on microscopy, 48 hour culture of csf negative

what is the diagnosis?

Options Choose 1

- A. Familial Mediterranean fever
- B. Adult onset Stills disease
- C. Behcet's syndrome
- D. Familial Hibernian fever
- E. Non Hodgkin's lymphoma

No.: 42

A

Pleuritis can occur in FMF as well as the commoner peritonitis. Aseptic meningitis is a recognised clinical manifestation of FMF. The splenomegaly and proteinuria is due to the development of amyloidosis, a not infrequent consequence of untreated FMF. Amyloidosis can complicate any condition characterised by a prolonged persistent acute phase response. The Marie nostrin gene is only found in 85% of patients with FMF. The SAP scan is a quantative investigation for the extent of amyloidosis. Colchicine given prophylactically in FMF is thought to offer some protection against the development of amyloidosis



<p>No.: 43</p> <p>A 29-year-old male asthmatic treated with B-agonists, inhaled steroids and monteleukast presents with a painful left wrist, painful swollen right knee, vasculitic skin rash, right ulnar nerve palsy and left foot drop. He has had a previous left nephrectomy for carcinoma</p> <p>Results: Hb 11.9g/dl, plats 439 X 10<sup>9</sup>/l, WCC 7.8 X 10<sup>9</sup>/l, neutrophils 4.1 X 10<sup>9</sup>/l, eosinophils 2.5 X 10<sup>9</sup>/l, lymphocytes 1.2 X 10<sup>9</sup>/l .</p> <p>ESR 45mm in the first hour, CRP 26 g/l .</p> <p>sodium 138 mmol/l, potassium 5.4 mmol/l, urea 10.8 mmol/l, creatinine 153 mmol/l</p> <p>What is the diagnosis?</p> <p>Options Choose 1</p> <p>A. Polyarteritis nodosa B. Churg Strauss vasculitis C. Wegeners granulomatosis D. Systemic lupus erythematosus E. Multicentric reticulohistiocytosis</p>	<p>No.: 43</p> <p><b>B</b></p> <p>The presence of eosinophilia with asthma, arthritis and mononeuritis multiplex make a diagnosis of Churg Strauss vasculitis highly likely. The leukotriene antagonists are recognised precipitants of Churg Strauss vasculitis .</p> <p>ANCA is usually positive in a p-ANCA pattern, the titre of anti-MPO does not reflect disease activity .</p> <p>The condition usually responds to withdrawal of the inciting agent and immunosuppression with prednisolone. More resistant cases may require cyclophosphamide</p> <p>Renal and cardiac involvement are poor prognostic indicators</p>
<p>No.: 44</p> <p>A 29-year-old male asthmatic treated with B-agonists, inhaled steroids and monteleukast presents with a painful left wrist, painful swollen right knee, vasculitic skin rash, right ulnar nerve palsy and left foot drop. He has had a previous left nephrectomy for carcinoma</p> <p>Results: Hb 11.9g/dl, plats 439 X 10<sup>9</sup>/l, WCC 7.8 X 10<sup>9</sup>/l, neutrophils 4.1 X 10<sup>9</sup>/l, eosinophils 2.5 X 10<sup>9</sup>/l, lymphocytes 1.2 X 10<sup>9</sup>/l .</p> <p>ESR 45mm in the first hour, CRP 26 g/l .</p> <p>sodium 138 mmol/l, potassium 5.4 mmol/l, urea 10.8 mmol/l, creatinine 153 mmol/l</p> <p>What is the most important prognostic factor?</p> <p>Options Choose 1</p> <p>A. Degree of CNS involvement B. Degree of renal involvement C. Anti-MPO titre D. Degree of eosinophilia at presentation E. Level of CRP</p>	<p>No.: 44</p> <p><b>B</b></p> <p>The presence of eosinophilia with asthma, arthritis and mononeuritis multiplex make a diagnosis of Churg Strauss vasculitis highly likely. The leukotriene antagonists are recognised precipitants of Churg Strauss vasculitis</p> <p>ANCA is usually positive in a p-ANCA pattern, the titre of anti-MPO does not reflect disease activity .</p> <p>The condition usually responds to withdrawal of the inciting agent and immunosuppression with prednisolone. More resistant cases may require cyclophosphamide</p> <p>Renal and cardiac involvement are poor prognostic indicators</p>





No.: 45

A 26-year-old air hostess is brought to A&E following a witnessed grand mal seizure. She has been previously fit and well except for a history of mild intermittent arthralgia affecting both hands. Her only medication is the OCP, she smokes 20/day and drinks 15 units of alcohol per week .

On examination she has no focal neurology. There is slight puffiness of the fingers and a low grade pyrexia of 37.6 C. BP 160/98 mmHg. Fudoscopy reveals silver wiring and AV nipping bilaterally. Urinalysis tests 3+ blood 2+ protein

Results: Hb 9.9g/dl, MCV 83fl, WCC 3.1 X 10<sup>9</sup>/l, platelets 117 X 10<sup>9</sup>/l. CRP 2g/l, ESR 71mm in the first hour. Sodium 134 mmol/l, potassium 5.1 mmol/l, urea 10.1 mmol/l, creatinine 178mmol/l. Albumin 30g/l, total protein 80g/l. LFTs normal. BM 7.8mmol

Clotting screen PTT 11 seconds APTT 39seconds VDRL positive 1:320

Drug screen of urine negative. Plasma alcohol not detected

The patient then develops acute dyspnoea and examination reveals decreased air entry at the right base, tachycardia, BP 105/55. O2 sats 94% on room air

What is the most likely cause of her new symptoms

Options Choose 1

- A. Fat embolism
- B. Right lower lobe pneumonia
- C. Pulmonary embolus
- D. Mononeuritis multiplex affecting the phrenic nerve
- E. Right sided pleural effusion

No.: 45

C

The presentation with a fit in the absence of structural or metabolic derangement accompanied with pancytopenia, arthralgia, and an elevated ESR with normal CRP is indicative of SLE

This patient has CNS and renal lupus. The positive VDRL, prolonged APTT and PE is comptable with associated anti-phospholipid syndrome .

AVN is a well recognised complication of steroid treatment







No.: 46

A 31-year-old woman is seen in the emergency department extremely unwell and pale. She has a 3 week history of haemoptysis and more recently noticed red urine. She had had a similar episode 3 years previously but had spontaneously made a full recovery .

O/E BP145/95, pulse 135 reg, Chest ♦ bilateral crackles in both lung fields on auscultation

Hb : ♦ 7.9,

WBC 12,

Plat 482

Clotting : ♦ normal

Na 138,

K 6.7,

Urea 41,

Creat 654

Urine: blood +++, Prot +++

CXR ♦ patchy interstitial shadowing both lung fields

What is the most likely diagnosis?

Options Choose 1

A. Goodpasture ♦ s syndrome

B. Microscopic Polyangiitis (microscopic polyarteritis)

C. SLE

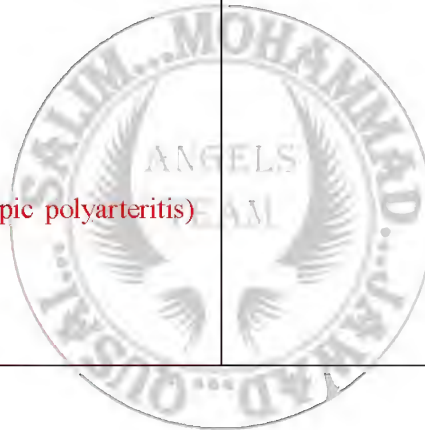
D. Polyarteritis Nodosa

E. Churg Strauss syndrome

No.: 46

B

This patient has the unusual combination of pulmonary haemorrhage and acute renal failure ('pulmonary-renal syndrome'). The recurrence suggests polyangiitis rather than Goodpasture's. Wegener's Granulatosi s would be another possibility but is not offered to you here. SLE, PAN and Churg Strauss do not usually cause pulmonary haemorrhage.





<p>No.: 1</p> <p>An 81-year-old woman on a medical ward developed acute disorientation to time and place. This was followed by episodes of anxiety, mood lability, paranoia and delusions. Mental state examination revealed the presence of illusions, visual hallucinations, poor attention and concentration, memory impairment and poor insight. The least likely cause for her condition is :</p> <p>Options</p> <p>A. Procyclidine B. Hyoscine butylbromide C. Oxybutynin D. Galantamine E. Amitriptyline</p>	<p>No.: 1</p> <p><b>B</b></p> <p>The psychiatric findings of agitation and confusion are non-specific. However, when considered in the light of a gait disturbance and ophthalmoplegia in an individual with skin lesions suggestive of chronic alcohol abuse, a presumptive diagnosis of Wernike's encephalopathy can be made. Treatment with thiamine is indicated and may reverse the condition. Less fortunate patients develop Korsakoff's psychosis.</p>
<p>No.: 2</p> <p>An 81-year-old woman on a medical ward developed acute disorientation to time and place. This was followed by episodes of anxiety, mood lability, paranoia and delusions. Mental state examination revealed the presence of illusions, visual hallucinations, poor attention and concentration, memory impairment and poor insight. The least likely cause for her condition is :</p> <p>Options</p> <p>A. Procyclidine B. Hyoscine butylbromide C. Oxybutynin D. Galantamine E. Amitriptyline</p>	<p>No.: 2</p> <p><b>D</b></p> <p>All drugs except galantamine contain anticholinergic activities, which have been associated in the aetiology of delirium. Galantamine, on the other hand, increases acetylcholine in the brain and may be helpful in the management of delirium.</p>



No.: 3

A 24-year-old woman has clear evidence of Bi-polar Disorder. An adequate trial of Lithium therapy has proved unsuccessful. Which of the following drugs would be most reasonable for her Psychiatrist to prescribe next :

Options

- A. Risperidone
- B. Carbamazepine
- C. Lorazepam
- D. Paroxetine
- E. Amitriptyline

No.: 3

B

Bi-polar Disorders refer to one or more manic episodes accompanied by one or more episodes of depression. They are present in approximately 1% of the population with an equal male/female ratio. The mean age of onset in over 60% of the population is before the age of 30. There is a genetic pre-disposition. Treatment in the manic phase is with a combination of antipsychotics and mood stabilisers and in the depressive phase, a combination of antidepressants and mood stabilisers. The best long term treatment is with mood stabilisers, with Lithium being the treatment of choice. In the case of Lithium non-response, Carbamazepine and Sodium Valproate can be used. The Serum levels of all these drugs can be monitored and every attempt made to keep it within the therapeutic range with regular blood tests.

No.: 4

A 38-year-old married woman comes to her family physician with a history of vague abdominal pains. She is certain she has cancer, even though exhaustive medical examinations have failed to reveal any abnormality. She continues to believe she has cancer, and that the doctors have not found it as yet. She wakes up very early in the morning and has lost a significant amount of weight, which she attributes to cancer. Tears come to her eyes as she talks about her only child having gone to University a few months ago. Since then, she has felt useless and has found no pleasure in any activities. All the following diagnoses need to be considered except :

Options

- A. Depressive Disorder
- B. Hypochondriasis
- C. Bereavement Reaction
- D. Somatization Disorder
- E. Post Traumatic Stress Disorder

No.: 4

E





No.: 5

A patient is admitted to hospital with a 6 month history of thought disorder, inappropriate affect and auditory hallucinations. His level of consciousness is clear, his orientation and memory is good. He is prescribed the antipsychotic drug Trifluoperazine at the dose of 5mg thrice daily. The next day, he develops a painful spasm of the sternocleidomastoid muscle, which twists his head to the right. He has developed :

Options

- A. Muscular Dystonia
- B. Tardive Dyskinesia
- C. Pseudo-Parkinsonism
- D. Akathisia
- E. Rabbit Syndrome

No.: 5

A



No.: 6

A young woman being treated with medication for an atypical depression goes to a party where she eats chicken liver pate and cheese. She develops a severe headache and on physical examination, her blood pressure is 200/130. The woman probably has been taking :

Options

- A. Lithium Carbonate
- B. Sertraline
- C. Phenelzine
- D. Amitriptyline
- E. Haloperidol

No.: 6

C

Phenelzine is a mono-amine oxidase (MAO) inhibitor, an antidepressant used for atypical depression. When such a patient takes food containing the amino-acid tyramine, like meat and cheese, a hypertensive crisis might develop.





No.: 7

A 32-year-old female patient presents to the Accident and Emergency Department after having taken an overdose of Paracetamol tablets. She has a previous history of having taken numerous overdoses. This one was taken following an argument with her boyfriend in the presence of her mother and other family members. She has had a number of boyfriends in the past and gets angry frequently. She is also uncertain about her goals in life. She refuses to see the Psychiatrist and says that she will see her Therapist the next day. The patient is most likely to be suffering from :

Options

- A. Histrionic Personality Disorder
- B. Borderline Personality Disorder
- C. Antisocial Personality Disorder
- D. Dependent Personality Disorder
- E. Narcissistic Personality Disorder

No.: 7



No.: 8

A 45-year-old man is hospitalised for treatment of lower back pain. During his hospitalisation for 3 weeks, he receives Lorazepam at the dose of 2mg daily, for insomnia related to discomfort. He has never used sedative-hypnotic agents in the past and on discharge, does not wish to continue with his medication. 12 days after returning home, he telephones his doctor to complain of repeated gruesome nightmares, many of which involve his time in hospital. The most likely explanation for this complaint would be :


Options

- A. REM Sleep Rebound
- B. Toxic Delirium
- C. Benzodiazepine Toxicity
- D. Adjustment Disorder
- E. Malingering

No.: 8

Sleep studies have shown that approximately 25% of total sleep time is rapid eye movement (REM Sleep). This is the period associated with dreaming. Most sedative-hypnotic agents seem to depress this phase of sleep. Thus, when such sedative hypnotics are used for a prolonged period, the brain develops a dreaming debt and when the offending agent is abruptly discontinued, dreaming time is radically increased above normal levels. This is called REM Sleep Rebound. The effect is insomnia laced with frequent and vivid dreams. Once manifested, this effect may persist for as long as 5 weeks. This REM Sleep Rebound can also be an associated finding in substance withdrawal states but it is not in itself an indication of physical addiction. This is one reason why due care needs to be exercised while prescribing benzodiazepines in hospital, especially the ones with significant addictive properties, like Lorazepam.



<p>No.: 9</p> <p>A 35-year-old man presents with a history of gradual impairment of memory and concentration, along with apathy and social withdrawal, along with loss of balance, co-ordination and leg weakness. Neurological examination reveals tremor, ataxia and hyper-reflexia. He is homosexual with a long history of intravenous heroin use. The first investigation you would order for such a patient is :</p> <p>Options</p> <p>A. Urine Drug Assay B. Psychometric Testing C. MRI Scan D. HIV Testing E. Liver Function Test</p>	<p>No.: 9</p> <p>D</p> <p>HIV dementia is the commonest form of dementia in young people. It is insidious in onset and presents with impairment of memory, concentration and mental slowing. There are also changes in behaviour, including apathy and social withdrawal and motor symptoms like loss of balance and co-ordination and leg weakness. Neurological examination may reveal tremor, ataxia and hyper-reflexia. By the time AIDS has developed, most affected persons will develop neuropsychiatric disturbance on testing and Central Nervous System (CNS) involvement on autopsy. The most common organic mental disorders associated with AIDS are dementia and delirium. The aim of treatment is mostly to halt the propagation of the virus.</p>
<p>No.: 10</p> <p>X a 51-year-old was first admitted to hospital in 1966 at aged 19. He was noticed to have a morbid fear of death and to be hypersexual. He also had a very abnormal electroencephalogram and an encephalopathy resembling Leukoencephalitis was suggested. Since childhood he was said to have tics and mannerisms. In 1967 a diagnosis of schizophrenia was made and he has had fourteen further admissions since then normally presenting with delusions .</p> <p>The following have been described as pathognomonic of schizophrenia :</p> <p>Options</p> <p>A. Negativism B. Perseveration of posture C. Automatic obedience D. Perseveration E. Somatic passivity</p>	<p>No.: 10</p> <p>E</p> 



No.: 11

X a 51-year-old was first admitted to hospital in 1966 at aged 19. He was noticed to have a morbid fear of death and to be hypersexual. He also had a very abnormal electroencephalogram and an encephalopathy resembling Leukoencephalitis was suggested. Since childhood he was said to have tics and mannerisms. In 1967 a diagnosis of schizophrenia was made and he has had fourteen further admissions since then normally presenting with delusions .

An inpatient continuously since 1986, he has been tried on a range of psychotic medication, often in doses above the BNF limits. In recent times he has suffered from symptoms of psychosis, stereotypies and mannerisms, and has had evidence of tardive dyskinesia and possible torsion dystonia .

His drug treatment prior to this exacerbation consisted of Haldol Decanoate Depot, Oral Benperidol and Diazepam .

Which of the following are sometimes described as 'atypical' neuroleptics :

Options

- A. Quetiapine
- B. Rivastigmine
- C. Galantamine
- D. Donepezil
- E. Memantine

No.: 11

A

Only Quetiapine is an atypical neuroleptic, the rest are drugs used in the treatment of Alzheimer's Dementia.





No.: 12

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An inpatient continuously since 1986, he has been tried on a range of psychotic medication, often in doses above the BNF limits. In recent times he has suffered from symptoms of psychosis, stereotypies and mannerisms, and has had evidence of tardive dyskinesia and possible torsion dystonia.

His drug treatment prior to this exacerbation consisted of Haldol Decanoate Depot, Oral Benperidol and Diazepam.

Dramatic change in his condition occurred in October 2000. He became restless and his self-care worsened. He heard voices from God about damnation and felt guilty and worthless. He felt that he might soon die. He felt thoughts inserted into his mind and experienced the feeling of being pushed against the wall. He had a number of bruises from falling and required restraint. Over ten days he needed a total dose of 650mg Flucopenphixol Acetate IM with additional Droperidol and Diazepam as required. His physical condition deteriorated with the patient presenting with periods of screaming and apparent rigidity. The Creatinine Kinase level was raised at 4960 IU/l. His neutrophil count was elevated and his heart rate was 116 a minute. A transfer to the adjacent medical unit was undertaken. He remained ill and distressed. He was sweaty, with a labile blood pressure. His limbs became increasingly rigid and attempts at movement were painful. For a time he was unresponsive, moving only his eyes. His temperature spiked at 38.9 and respiration was impaired. Cortisol levels were raised.

Analysis of the raised creatinine kinase level showed it to be of muscle rather than of cardiac origin. An E. coli urinary infection was identified and treated. The lumbar puncture revealed cerebro-spinal fluid to be normal. Computerised tomograms of the head were unremarkable. The patient remained significantly distressed and delusional and required ECT. He improved swiftly and substantially, returned to a state of health prior to this exacerbation. Following a relapse requiring further ECT, clozapine was restarted and Valproate later added following an epileptic fit.

Which of the following are common language abnormalities present in schizophrenia :

Options

- A. Echolalia
- B. Glossolalia
- C. Verbigeration
- D. Neologism
- E. Pressure of speech

No.: 12

D

Glossolalia, also known as speaking in tongues, is characteristic of mania or religious processes. Pressure of speech is likewise characteristic of mania. Verbigeration is a sign of formal thought disorder which can occur in several psychoses. Neologism is mainly a symptom of schizophrenia.







No.: 13

X a 51-year-old was first admitted to hospital in 1966 at aged 19. He was noticed to have a morbid fear of death and to be hypersexual. He also had a very abnormal electroencephalogram and an encephalopathy resembling Leukoencephalitis was suggested. Since childhood he was said to have tics and mannerisms. In 1967 a diagnosis of schizophrenia was made and he has had fourteen further admissions since then normally presenting with delusions. An inpatient continuously since 1986, he has been tried on a range of psychotic medication, often in doses above the BNF limits. In recent times he has suffered from symptoms of psychosis, stereotypies and mannerisms, and has had evidence of tardive dyskinesia and possible torsion dystonia. His drug treatment prior to this exacerbation consisted of Haldol Decanoate Depot, Oral Benperidol and Diazepam.

Dramatic change in his condition occurred in October 2000. He became restless and his self-care worsened. He heard voices from God about damnation and felt guilty and worthless. He felt that he might soon die. He felt thoughts inserted into his mind and experienced the feeling of being pushed against the wall. He had a number of bruises from falling and required restraint. Over ten days he needed a total dose of 650mg Flucopenphixol Acetate IM with additional Droperidol and Diazepam as required. His physical condition deteriorated with the patient presenting with periods of screaming and apparent rigidity. The Creatinine Kinase level was raised at 4960 IU/l. His neutrophil count was elevated and his heart rate was 116 a minute. A transfer to the adjacent medical unit was undertaken. He remained ill and distressed. He was sweaty, with a labile blood pressure. His limbs became increasingly rigid and attempts at movement were painful. For a time he was unresponsive, moving only his eyes. His temperature spiked at 38.9°C and respiration was impaired. Cortisol levels were raised.

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A characteristic feature of neuroleptic malignant syndrome include :

Options

- A. Muscle rigidity
- B. Impaired autonomic functions
- C. Neutropenia
- D. Decreased creatinine phosphokinase
- E. Decreased potassium levels

No.: 13

A

Catatonia is often confused with neuroleptic malignant syndrome, first described by Deallie and Seneca in 1968. The onset is two to twenty-eight days after receiving neuroleptics.

A neutrophilia occurs. Creatinine phosphokinase level is increased. Potassium levels level is increased. Autonomic instability is a sign of neuroleptic malignant syndrome. Muscle rigidity is characteristic.





No.: 14

A 40-year-old Asian man presents to the police after having been found shouting in the street. At interview his speech is rapid and confused. He is aroused, animated and over-familiar with clang-associations and tangentiality. He states that there are voices in his head, that the radio talk directly to him. He informs you that his brother is watching him all the time. He is too distractible for cognitive stage examination and no further history is available. Physical examination ♦ no abnormalities are elicited .

Blood investigations reveal a neutrophilia of 9.7 (2.2-7.5) and a lymphopenia of 0.47 (1.2-4.0). Overall the white cell count was 11.1 (3.8-11.0). RBC, HT, MCV and platelet counts are all within normal parameters as were biochemistry results .

The patient claimed to have had an accident after being sideswiped on a motorway, while driving a powerful motorbike at great speed. His family stated that it was a farm accident on a moped. The patient has recently lost his flat after accumulating substantial debts for non-payment of his mortgage. His supervisor reports that he has had difficulties at work for the last two years and has required extra support .

The best explanation for the above would be :

Options

- A. Personality disorder
- B. Bipolar disorder
- C. Personality change secondary to trauma
- D. Cognitive decline due to psychological reasons
- E. Organic psychosis

No.: 14

E A personality disorder would not present with fluctuating or progressive features, and hallucinations or delusions would be a very unusual feature. This does not account for the majority of the events nor does personality change secondary to trauma. Cognitive decline due to psychological reasons does not exist. Of bipolar disorder and organic psychosis the latter explains the abnormal pathology better.





No.: 15

A 37-year-old Caucasian man presents to Casualty after having turned up for his work on his day off and behaved unusually. At interview his speech is rapid and slurred. He is aroused, animated and over-familiar with clang-associations and tangentiality. He states that there are voices in his head, that the TV and radio talk directly to him, that his father has been a secret agent and his mother assassinated. He states that he has saved a girl's life and complains of a four-month headache. He is too distractible for cognitive stage examination and no further history is available. Physical examination no abnormalities are elicited.

Blood investigations reveal a neutrophilia of 9.7 (2.2-7.5) and a lymphopenia of 0.47 (1.2-4.0). Overall the white cell count was 11.1 (3.8-11.0). RBC, HT, MCV and platelet counts are all within normal parameters as were biochemistry results.

Collateral history reveals that his father had been a diplomat and had possibly performed for the intelligence services. His mother had died in a car crash. He had not saved a girl's life as claimed. The patient claimed to have had an accident after being sideswiped on a motorway, while driving a powerful motorbike at great speed. His family stated that it was a farm accident on a moped. The patient has recently lost his flat after accumulating substantial debts for non-payment of his mortgage. His supervisor reports that he has had difficulties at work for the last two years and has required extra support. He has been moved repeatedly from positions of responsibility to lesser ones and has been over-familiar with customers via the loudspeaker system and has had to be removed from cash related tasks as he had been found to be less than careful in his duty.

The following morning the patient had two tonic-clonic seizures, was pyrexial and had increased tone in the right side of his body.

Which of the following is the best explanation for this :

Options

- A. A left-sided cerebral vascular accident
- B. Temporal lobe epilepsy
- C. Encephalitis
- D. Substance withdrawal
- E. Alcohol withdrawal

No.: 15

A left-sided cerebral vascular accident, temporal lobe epilepsy, substance withdrawal, alcohol withdrawal would all cause some of the symptoms. A left-sided cerebral vascular accident would not have been preceded by the abnormal behaviour. Substance withdrawal would not have an associated raised temperature without a comorbid infection. Encephalitis would account for the physical and psycho-behavioural symptoms.



No.: 16

A 37-year-old Caucasian man presents to Casualty after having turned up for his work on his day off and behaved unusually. At interview his speech is rapid and slurred. He is aroused, animated and over-familiar with clang-associations and tangentiality. He states that there are voices in his head, that the TV and radio talk directly to him, that his father has been a secret agent and his mother assassinated. He states that he has saved a girl's life and complains of a four-month headache. He is too distractible for cognitive stage examination and no further history is available. Physical examination no abnormalities are elicited.

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The following morning the patient had two tonic-clonic seizures, was pyrexial and had increased tone in the right side of his body.

The least urgent worthwhile investigation is :

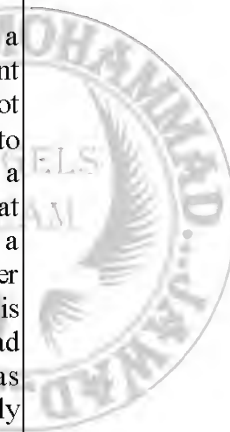
Options

- A. Blood culture & sensitivity
- B. Urine culture & sensitivity
- C. VDRL
- D. CSF analysis
- E. CT scan

No.: 16

C

The VDRL can probably wait the longest. As the infection has been present for at least 2 years another 48 hours is not going to add significantly to the pathology. Exclusion of acute sepsis is very important in the investigation of confusion. Viral encephalitis can present in a number of unusual ways, including subtle cognitive changes. CSF examination is, of course, important in this respect.







No.: 17

A 37-year-old Caucasian man presents to Casualty after having turned up for his work on his day off and behaved unusually. At interview his speech is rapid and slurred. He is aroused, animated and over-familiar with clang-associations and tangentiality. He states that there are voices in his head, that the TV and radio talk directly to him, that his father has been a secret agent and his mother assassinated. He states that he has saved a girl's life and complains of a four-month headache. He is too distractible for cognitive stage examination and no further history is available. Physical examination ♦ no abnormalities are elicited .

Blood investigations reveal a neutrophilia of 9.7 (2.2-7.5) and a lymphopenia of 0.47 (1.2-4.0). Overall the white cell count was 11.1 (3.8-11.0). RBC, HT, MCV and platelet counts are all within normal parameters as were biochemistry results .

Collateral history reveals that his father had been a diplomat and had possibly performed for the intelligent services. His mother had died in a car crash. He had not saved a girl's life as claimed. The patient claimed to have had an accident after being sideswiped on a motorway, while driving a powerful motorbike at great speed. His family stated that it was a farm accident on a moped. The patient has recently lost his flat after accumulating substantial debts for non-payment of his mortgage. His supervisor reports that he has had difficulties at work for the last two years and has required extra support. He has been moved repeatedly from positions of responsibility to lesser ones and has been over-familiar with customers via the loudspeaker system and has had to be removed from cash related tasks as he had been found to be less than careful in his duty .

The following morning the patient had two tonic-clonic seizures, was pyrexial and had increased tone in the right side of his body .

A lumbar puncture shows an elevated CSF protein of 0.85 (.12- .6) and a glucose of 5.0. Microscopy shows a RBC of 600 and WBC of 5 and a negative culture growth. The most likely cause is viral encephalitis, or bacterial encephalitis. Viral encephalitis is presumed. Antiviral treatment was started. Acyclovir 700mg tds. Syphilis serology is finally obtained revealing a serum TPHA level of 1/80,000 and a VDRL titres of 1/128. A repeat lumbar puncture shows levels of CSF of 1/5,125 and 1/8 respectively. Penicillin treatment 1.2 MU daily for three weeks with steroid cover is commenced. A CT scan reveals an old left frontal infarct .

Following recovery the following sexual history was obtained. Over the last four years prior to his partner's death he had engaged in an episode of receptive anal intercourse and visited prostitutes 1-2 times per month. He insisted that he used condoms all the time. Testing for HIV gave a negative response. At discharge he agreed to follow-up at his local GU clinic and undertook contact tracing .

Syphilis is divided into early and late stages. Early syphilis includes spirochetemia, which can be responsible for neurological symptoms. Meningovascular disease presents within one to five years a primary infection, diffuse inflammation leading to thickening and necrosis, and vascular pathology occurs .

Which of the following rarely present when there is vascular pathology in neurosyphilis :

Options

- A. Emotional instability
- B. Violent outbursts
- C. Impaired concentration
- D. Impaired judgement
- E. Impaired recall

No.: 17

B

Violent outbursts are the only rare manifestation. Syphilis is divided into early and late stages. Early syphilis includes spirochetemia, which can be responsible for neurological symptoms. Meningovascular disease presents within one to five years a primary infection, diffuse inflammation leading to thickening and necrosis, and vascular pathology occurs.





No.: 18

A 57-year-old man presents to Casualty after being found in a park behaving unusually. At interview his speech is difficult to follow, but intact in form. He describes feeling generally disorientated and concerned that he is being followed. He is disorientated to the extent that admission is arranged.

A lumbar puncture shows an elevated CSF protein of 0.85 (.12-. 6) and a glucose of 5.0. Microscopy shows a RBC of 600 and WBC of 5 and a negative culture growth. The most likely cause is viral encephalitis, or bacterial encephalitis. Viral encephalitis is presumed. Antiviral treatment was started. Acyclovir 700mg tds. Syphilis serology is finally obtained revealing a serum TPHA level of 1/80,000 and a VDRL titres of 1/128. A repeat lumbar puncture shows levels of CSF of 1/5,125 and 1/8 respectively. Penicillin treatment 1.2 MU daily for three weeks with steroid cover is commenced. A CT scan reveals an old left frontal infarct.

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As the condition progresses which of the following occur:

Options

- A. Delusions
- B. Clouding of consciousness
- C. Hallucinations (Visual)
- D. Morbid jealousy
- E. Depersonalisation

No.: 18

B

Syphilis is divided into early and late stages. Early syphilis includes spirochetemia, which can be responsible for neurological symptoms. Meningovascular disease presents within one to five years a primary infection, diffuse inflammation leading to thickening and necrosis, and vascular pathology occurs.

Delusions are usually fleeting, however clouding of consciousness is usually present- Hallucinations (Visual) are indicative of an organic process until otherwise excluded. Morbid jealousy is a feature of alcohol misuse, and is also named Othello syndrome. Depersonalisation is a feeling of not being quite real, and is not a solely psychotic phenomena.



No.: 19

A 43-year-old copywriter has been repeatedly absent from work over the last three weeks. He has a fine resting tremor and appears dishevelled. He tells you that he is drinking "most nights ."

The current safe levels of drinking recommended by the government for men are :

Options

- A. 10 units per week
- B. 15 units per week
- C. 20 units per week
- D. 21 units per week
- E. 22 units per week

No.: 19

D

21units per week is the recommended limit for men. For women it is 14 units per week .

A unit of alcohol is a glass of wine, a measure of spirits or half a pint of beer .

Patient's alcohol histories are often not the same as their actual intake. A mean corpuscle volume or transaminase assay may indicate a high level of intake, although this is not a specific or sensitive screening test.





No.: 20

DC is a 25-year-old white male, referred for a court report for stealing a bottle of vodka. He has had a turbulent childhood, spending time in a school for disturbed children. Fellow pupils and schoolteachers repeatedly beat him up. He engaged in sniffing solvents and persisted in this activity on a near daily basis from the age of 17. From 15-23 he has used cocaine, LSD, ecstasy, amphetamines and smoked heroin. He still uses cannabis. For the last few years the only illegal drug he has been using is cannabis once or twice weekly and psilocybin. From the age of 15 to the current day his alcohol intake has been at most 2-3 litres of whisky a day two to three times a week and drinking slightly less on other days.

He drinks immediately upon waking to prevent tremors and frequently describes blackouts. On several occasions he has experienced the sensation of objects crawling over his skin.

He regularly has tremors and has been through detoxification ten times during his life. Over the last three to four weeks he has voluntarily cut down his alcohol and is currently drinking less than 20 units per week. He has failed to remain abstinent.

At the age of 18 he was in a serious road traffic accident when one passenger died and another fractured his back and CD fractured his pelvis. As a result he has a residual fear which occasionally manifests in difficulty in getting into cars and crossing the street.

Which of the following criteria is not necessary for a specific phobia to be diagnosable?

Options

- A. Marked and persistent fear that is excessive or unreasonable cued by the presence or anticipation of a specific object or situation.
- B. Exposure to the feared situation nearly always produces a panic attack.
- C. The fear is recognised as irrational or unreasonable.
- D. The stressor is avoided.
- E. The avoidance interferes significantly with the person's normal routine.

No.: 20

E  
Marked and persistent fear that is excessive or unreasonable cued by the presence or anticipation of a specific object or situation, exposure to the feared situation nearly always produces a panic attack, the fear is recognised as irrational or unreasonable, and the stressor is avoided, are all diagnostic criteria in DSM-IV. E is not a criteria because it is not necessary for the avoidance to interfere significantly with the person's normal routine, instead there could be a marked distress about having the phobia. He does not fill the diagnostic criteria because the fear is not almost unbearably present.





No.: 21

DC is a 25-year-old white male, referred for a court report for stealing a bottle of vodka. He has had a turbulent childhood, spending time in a school for disturbed children. Fellow pupils and schoolteachers repeatedly beat him up. He engaged in sniffing solvents and persisted in this activity on a near daily basis from the age of 17. From 15-23 he has used cocaine, LSD, ecstasy, amphetamines and smoked heroin. He still uses cannabis. For the last few years the only illegal drug he has been using is cannabis once or twice weekly and psilocybin. From the age of 15 to the current day his alcohol intake has been at most 2-3 litres of whisky a day two to three times a week and drinking slightly less on other days.

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He regularly has tremors and has been through detoxification ten times during his life. Over the last three to four weeks he has voluntarily cut down his alcohol and is currently drinking less than 20 units per week. He has failed to remain abstinent.

At the age of 18 he was in a serious road traffic accident when one passenger died and another fractured his back and CD fractured his pelvis. As a result he has a residual fear which occasionally manifests in difficulty in getting into cars and crossing the street.

Symptoms, which would lead you to suspect post-traumatic stress disorder rather than another diagnosis, include :

Options

- A. Recurrent and intrusive recollections or dreams
- B. Flashbacks only when intoxicated
- C. Psychological distress at exposure to cues or events that resemble the trauma
- D. Persistent symptoms of decreased arousal, including difficulty sleeping, irritability, poor concentration, hyper-vigilance, exaggerated startle response
- E. Increased serum cortisol levels

No.: 21

NOT

Flashbacks do occur but not only when intoxicated, this would cause some suspicion to be raised. Difficulty sleeping, irritability, poor concentration, hyper-vigilance, and exaggerated startle response are all seen in this condition, but would also be a prominent feature of a depressive illness. Increased serum cortisol levels occur in some patients, but is not diagnostic. Both recurrent and intrusive recollections or dreams and psychological distress at exposure to cues or events that resemble the trauma occur. The latter though can occur in simple phobias.



No.: 22

DC is a 25-year-old white male, referred for a court report for stealing a bottle of vodka. He has had a turbulent childhood, spending time in a school for disturbed children. Fellow pupils and schoolteachers repeatedly beat him up. He engaged in sniffing solvents and persisted in this activity on a near daily basis from the age of 17. From 15-23 he has used cocaine, LSD, ecstasy, amphetamines and smoked heroin. He still uses cannabis. For the last few years the only illegal drug he has been using is cannabis once or twice weekly and psilocybin. From the age of 15 to the current day his alcohol intake has been at most 2-3 litres of whisky a day two to three times a week and drinking slightly less on other days .

He drinks immediately upon wakening to prevent tremors and frequently describes blackouts. On several occasions he has experienced the sensation of objects crawling over his skin .

He regularly has tremors and has been through detoxification ten times during his life. Over the last three to four weeks he has voluntarily cut down his alcohol and is currently drinking less than 20 units per week. He has failed to remain abstinent .

At the age of 18 he was in a serious road traffic accident when one passenger died and another fractured his back and CD fractured his pelvis. As a result he has a residual fear which occasionally manifests in difficulty in getting into cars and crossing the street .

He has been stabbed six times during alcoholic fights and has required drainage of an infusion of his patella and he has also been in a fight and been hit on the head with a saw, requiring stitches. He states he was in hospital and unconscious for two day. The scar is over his left forehead .

You perform cognitive state examination and discover that he has impairment with Benton Verbal Fluency, some unexpected ataxia and he slightly red eyes .

Which of the following is the most likely explanation :

Options

- A. Acute alcohol intoxication
- B. Cannabis intoxication
- C. Dementia
- D. Frontal lobe dementia
- E. Encephalitis

No.: 22

B

It could not be encephalitis because he is not disorientated in time or space. Likewise it could not be a dementia because there are no global deficits. It could not be a frontal lobe dementia as there is only a mild impairment of frontal verbal function and not a frontal motor function. Of alcohol or cannabis intoxication the latter is more likely.



<p>No.: 23</p> <p>A 24 year woman is brought to the Accident and Emergency Department by her husband with a 3-week history of hyperactivity, increased talkativeness, lack of sleep and sexually disinhibited behaviour. This was preceded by a history of low mood, lack of interest in any activities, poor appetite and frequent tearfulness. The woman has recently given birth and is completely unable to look after the child or carry out her day-to-day activities. The differential diagnosis for this patient would include :</p> <p>Options Choose 4</p> <p>A. Hebephrenic Schizophrenia B. Delirium C. Bipolar Affective Disorder D. Mania with Psychotic Symptoms E. Mania without Psychotic Symptoms F. Hypomania G. Puerperal Psychosis</p>	<p>No.: 23</p> <p><b>C D E G</b></p> <p>Bi-polar Disorders refer to one or more manic episodes accompanied by one or more episodes of depression. They are present in approximately 1% of the population with an equal male/female ratio. The mean age of onset in over 60% of the population is before the age of 30. There is a genetic pre-disposition. Treatment in the manic phase is with a combination of antipsychotics and mood stabilisers and in the depressive phase, a combination of antidepressants and mood stabilisers. The best long term treatment is with mood stabilisers, with Lithium being the treatment of choice. In the case of Lithium non-response, Carbamazepine, Sodium Valproate and other anti-epileptics like Lamotrigine can be used.</p>
<p>No.: 24</p> <p>A 24 year woman is brought to the Accident and Emergency Department by her husband with a 3-week history of hyperactivity, increased talkativeness, lack of sleep and sexually disinhibited behaviour. This was preceded by a history of low mood, lack of interest in any activities, poor appetite and frequent tearfulness. The woman has recently given birth and is completely unable to look after the child or carry out her day-to-day activities. Treatment for this woman could include the following medication :</p> <p>Options Choose 3</p> <p>A. Olanzapine B. Haloperidol C. Amitriptyline D. Sertraline E. Lithium</p>	<p>No.: 24</p> <p><b>A B E</b></p> <p>This woman is most likely suffering from Bipolar Affective Disorder. Bi-polar Disorder refer to one or more manic episodes accompanied by one or more episodes of depression. They are present in approximately 1% of the population with an equal male/female ratio. The mean age of onset in over 60% of the population is before the age of 30. There is a genetic pre-disposition. Treatment in the manic phase is with a combination of antipsychotics and mood stabilisers and in the depression phase, a combination of antidepressants and mood stabilisers. The best long term treatment is with mood stabilisers with Lithium being the treatment of choice. In the case of Lithium non-response, Carbamazepine, Sodium Valproate or other anti-epileptics like Lamotrigine can be used.</p>



No.: 25

A 24 year woman is brought to the Accident and Emergency Department by her husband with a 3-week history of hyperactivity, increased talkativeness, lack of sleep and sexually disinhibited behaviour. This was preceded by a history of low mood, lack of interest in any activities, poor appetite and frequent tearfulness. The woman has recently given birth and is completely unable to look after the child or carry out her day-to-day activities. This woman is diagnosed with Bipolar Affective Disorder and is treated with Lithium. She is monitored in the outpatients clinic over the next year but has two further relapses. The drug which would be most reasonable to try next is :

Options Choose 3

- A. Risperidone
- B. Carbamazepine
- C. Lorazepam
- D. Paroxetine
- E. Sodium Valproate
- F. Lamotrigine

No.: 25

B E F

The best long treatment for Bipolar Disorder is with Lithium. In the case of Lithium non-response, Carbamazepine, Sodium Valproate or other anti-epileptics like Lamotrigine can be used.







<p>No.: 26</p> <p>A 25-year-old man has a 6-month history of believing that other people are trying to put 'bad thoughts' in his head and trying to make him do 'bad things'. He finds special messages for him in television news reports and the newspaper. He is agitated and paces up and down constantly. His affect is inappropriate, and he laughs as he talks about his persecution. Physical examination is within normal limits. Drug screen is negative. The patient is subsequently diagnosed as having Paranoid Schizophrenia. Management of the patient's illness should include the following :</p> <p>Options Choose 4</p> <p>A. Antidepressants B. Family Therapy C. Long Acting Injectable Antipsychotics D. Oral Antipsychotics E. Cognitive Behavioural Therapy</p>	<p>No.: 26</p> <p><b>B C D E</b></p> <p>This patient has the classic symptoms of developing schizophrenia illness, which is characterised by the presence of delusions, hallucinations, symptoms of thought interference, inappropriate affect and bizarre behaviour. Apart from these positive symptoms, the patient might also have negative symptoms like flat affect, poverty of speech, poor motivation and social withdrawal. Lifetime prevalence 1%; onset characteristically in the early 20's, but could be any time between 15 and 35. No single aetiological factor, but emerging consensus of neuro-developmental disorder. Course is one of chronic deterioration superimposed by acute exacerbations, post psychotic depression may occur. Better prognosis if acute onset, good pre-morbid social history, presence of positive symptoms and presence of mood symptoms. Treatment is with a combination of antipsychotic medications, which includes the older antipsychotics like Haloperidol and Trifluoperazine, and the newer antipsychotics like Risperidone and Olanzapine (which are becoming increasingly popular). Injectable long-acting antipsychotics like Zuclopenthixol and Flupenthixol can also be used. This needs to be combined with psychosocial treatment measures to manage the negative symptoms of the illness. Family therapy and cognitive behavioural therapy are becoming increasingly popular.</p>
<p>No.: 27</p> <p>A 32-year-old man is brought to the Accidents and Emergency Department with tremors in both arms and his face. He is extremely restless and agitated. He is sweating profusely and has tachycardia and dilated pupils. He has been hearing voices for the past 10 days. The man is diagnosed with Delirium Tremens. The management plan for this patient would include :</p> <p>Options Choose 2</p> <p>A. Admission to hospital B. Nursing in a completely dark room C. Parental Multivitamin Preparation D. Benzodiazepines in progressively increasing doses</p>	<p>No.: 27</p> <p><b>A C</b></p> <p>This occurs when an individual who is severely dependent on alcohol stops drinking suddenly or severely reduces his drinking. It is most common in individuals between 30 and 40 years of age and occurs in fewer than 5% of alcoholics. Symptoms include marked tremor of limbs, body and tongue, restlessness, loss of contact with reality, disorientation and illusions progressing to terrifying hallucinations which are most often visual but may be auditory or tactile. Delusions of a paranoid kind may also arise out of hallucinations. There is pronounced fever, sweating and tachycardia, with symptoms often worse at night. Management will include admission to hospital, nursing in a uniformly lit room with resuscitation equipment, parental multivitamin preparations and benzodiazepines like Chlordiazepoxide or Chlormethiazole in progressively reducing dose as a treatment of choice.</p>



<p>No.: 28</p> <p>A 62-year-old man is referred by his GP with a 3 year history of gradual loss of memory, inability to perform day-to-day activities like shopping and worsening social behaviour. The patient might additionally have the following symptoms :</p> <p>Options Choose 3</p> <p>A. Kaiser-Fleisher rings in his eye B. Accompanying delusional symptoms and depression C. Altered handwriting D. Fluctuating course E. Mirror sign and catastrophic reaction</p>	<p>No.: 28</p> <p>B C E</p> <p>Alzheimer's Disease is a primary degenerative dementia that usually manifests itself between the ages of 50 and 60 years. It will usually develop insidiously and may present with amnesia and dementia accompanied by delirium, delusions or depression. However, no symptoms complex is particularly characteristic. Mirror sign and catastrophic reaction are two signs which are seen in the later phases of the illness. Diagnosis is usually clinical. Progression is slow, as opposed to Multi-infarct dementia, where onset is abrupt, with step wise deterioration and a fluctuating course. Kayser-Fleischer Ring is pathogenic of Wilson's Disease, an autosomal recessive disorder of copper metabolism, resulting in hepatolenticular degeneration.</p>
<p>No.: 29</p> <p>A 35-year-old man, is admitted to hospital with a 6-month history of thought disorder, inappropriate affect and auditory hallucinations. His level of consciousness is clear, his orientation and memory is good. He is prescribed the antipsychotic drug Trifluoperazine at the dose of 5 mg thrice daily. The next day, he develops a painful spasm of the sternocleidomastoid muscle, which twists his head to the right. The most likely diagnosis for this patient would be :</p> <p>Options Choose 1</p> <p>A. Muscular Dystonia B. Tardive Dyskinesia C. Pseudo-Parkinsonism D. Akathisia E. Rabbit Syndrome</p>	<p>No.: 29</p> <p>A</p> <p>Muscular Dystonia is the most common extra-pyramidal side effect within the first few days after beginning treatment with an antipsychotic. Tardive Dyskinesia (TD) could develop after long term use of an antipsychotic. It is commoner in the female and elderly, those with organic brain damage and who manifest other extra pyramidal side effects early on. This is characterised by a stereo-typical buccolingual masticatory movements or by choreoathetotic movements affecting trunk and limbs. Akathisia is a distressing motor restlessness. The combination of rigidity, akinesia and tremor is called Pseudo-Parkinsonism. The Rabbit syndrome is a rapid tremor.</p>



<p>No.: 30</p> <p>A young woman presents with a 3 week history of depressed mood, excessive sleep during the day and relative lack of sleep at night, increased appetite and lack of interest in day-to-day activities. The most likely diagnosis for this woman is :</p> <p>Options Choose 1</p> <p>A. Mania B. Schizophrenia C. Depressions</p>	<p>No.: 30</p> <p>C</p> <p>This woman is showing typical depression symptoms.</p>
<p>No.: 31</p> <p>A 45-year-old is brought to the outpatients by his sister. He lost his job in the local press about a year ago and since then, has been spending all his time at home, creating a fan magazine for a famous female TV presenter. He also writes to this TV presenter almost every day and has made repeated attempts to telephone her. He also says that he has received telephone calls from her at home, but the sister has never spoken to her. He is otherwise appropriate in manner and is able to look after himself. He makes some money from selling fan magazines to other admirers of this TV presenter. The following diagnoses need to be considered for this man :</p> <p>Options Choose 2</p> <p>A. Schizophrenia B. Erotomania C. Persistant Delusional Disorder D. Depression E. Obsessive Compulsive Disorder</p>	<p>No.: 31</p> <p>B C</p> <p>Persistant delusional disorder is a psychiatric condition characterised by a monosymptomatic delusion, around which the person constructs his life. When this delusion involves the conviction that somebody of much higher status was in love with the individual, this is called erotomania. Such delusions are notoriously resistant to treatment.</p>





No.: 32

A 45-year-old man is brought to the outpatients by his sister. He lost his job in the local press about a year ago and since then, has been spending all his time at home, creating a fan magazine for a famous TV presenter. He also writes to this TV presenter almost every day and has made repeated attempts to telephone her. He also says that he has received telephone calls from her at home, but his sister has never spoken to her. He is otherwise appropriate in manner and is able to look after himself. He makes some money from selling fan magazines to other admirers of this TV presenter. The man is diagnosed as having Persistent Delusional Disorder. Thus, the man would benefit from the following treatment interventions :

Options Choose 2

- A. SSRI antidepressants
- B. MAO-A inhibitors
- C. Cognitive Behaviour Therapy
- D. Mood stabilisers
- E. Pimozide

No.: 32

C E

Persistent delusional disorder is a psychiatric condition characterised by monosymptomatic delusion, around which the person constructs his life. When this delusion involves the conviction that somebody of much higher status was in love with the individual, this is called erotomania. Such delusions are notoriously resistant to treatment. There is some evidence that the antipsychotic Pimozide has some effect on this condition. Antipsychotic treatment would, however, be needed to be combined with cognitive behavioural therapy to challenge the delusions.

No.: 33

A 40-year-old has a history of multiple somatic complaints for which she has been 'worked up' and treated by many competent physicians. However, all their efforts have failed to influence her chronic but fluctuating history of malaise and somatic distress. She now complains of an array of symptoms : Dysphoria, irregular and painful menstruation, shortness of breath, light-headedness, nausea, heartburn, frequency of urination, weak spells and twitching legs. Physical examination and laboratory testing revealed no abnormality. She is therefore diagnosed with Somatization Disorder. Treatment should involve which of the following :

Options Choose 2

- A. ECT
- B. Antidepressants
- C. Psychotherapy
- D. Aversion Therapy
- E. Response Prevention

No.: 33

B C

Somatization disorders run a lifelong but fluctuating course. There are multiple somatic complaints, of which the commonest are chest and cardiac complaints followed by back and joint pain and menstrual symptoms. The duration should be at least 2 years. The emphasis is on the symptoms themselves as opposed to the underlying fear of disease, which is characteristic of hypochondriasis. Unlike malingering, the patient genuinely experiences these symptoms. The symptoms are not feigned as in factitious disorder. The symptoms are also not dramatic and characterised by pathological lying, as is the case with Munchausen's Syndrome. Comorbid depression should always be looked for in Somatization Disorder. Treatment is mainly with cognitive behavioural therapy, focused on reassurance and ability to manage symptoms. Antidepressants can be used for depression. Cultural factors play an important role in the presentation of the symptoms.





No.: 34

A 32-year-old female patient presents to Accident and Emergency Department after having taken an overdose of Paracetamol tablets. She has a previous history of having taken numerous overdoses. This one was taken following an argument with her boyfriend in the presence of her mother and other family members. She has had a number of boyfriends in the past and gets angry frequently. She is also uncertain about her goals in life. She refuses to see a Psychiatrist and says that she will see her Therapist the next day. The patient is diagnosed as suffering from Borderline Personality Disorder. Treatment for this patient would consist of :

Options Choose 3

- A. Psychotherapy
- B. Depot antipsychotics
- C. ECT
- D. Benzodiazepine
- E. Mood stabilisers (eg. lithium)

No.: 34

A B E

Borderline Personality Disorder is characterised by impulsive behaviour with intense outbursts of anger, rapid shift of mood, frequent suicidal gestures, chronic feelings of emptiness and boredom and marked uncertainty about identity.





No.: 35

A 70-year-old man was seen in the local outpatient clinic by an old age psychiatrist. His wife and son reported that he has been very fit and healthy previously but began to behave strangely and out of character about 9 months ago. They noted that he started to talk to strangers on shopping trips and reported periods of restlessness and agitation and on one occasion he lashed out against his wife. The family also noted that he has become paranoid about next door neighbours accusing them of spying on him. The wife stated that at times he is low in mood and that she had observed him crying on couple of occasions, something he had never done before. When the family was questioned about his memory they reported that he has been increasingly forgetful for 7 months and had difficulties remembering dates, names and day to day things, but his long-term memory remained intact. The wife reported that his confusion appears to be worse at night.

Differential diagnosis of this man's illness should include:

Options Choose 4

- A. Alzheimer's disease
- B. Dementia with Lewy bodies
- C. Vascular dementia
- D. Paranoid schizophrenia
- E. Frontotemporal dementia

No.: 35

A B C E

Dementia can be defined as a progressive failure in higher brain functions. Although memory is primarily affected, the deficits also involve thinking processes, activities of daily living, emotions, comprehension, calculation, abstraction as well as other higher brain functions. Alzheimer's disease, vascular dementia, dementia with Lewy bodies and frontotemporal dementia make up more than 95% of all dementia cases. Although the initial presentation may differ among these dementia subtypes making the diagnosis easy, in some instances it is very difficult to distinguish between these disorders and intensive investigations may be needed. A firm diagnosis, however, can only occur at autopsy.





No.: 36

A 72-year-old man with a 1-year history of fluctuating short term memory problems was admitted to a specialist ward for observation. On examination he was found to have resting tremor of both hands, and mild rigidity. Observation on the ward over the next few days revealed an increase tendency to fall and urinary incontinence. There was also evidence of visual hallucinations, delusions and severe agitation. His conditioned worsened significantly when he was prescribed a small dose of haloperidol by the duty doctor.

The most likely diagnosis is :

Options Choose 1

- A. Alzheimer's disease
- B. Dementia with Lewy bodies
- C. Vascular dementia
- D. Paranoid schizophrenia
- E. Frontotemporal dementia
- F. Creutzfeldt Jacob Disease
- G. Drug toxicity

No.: 36

**B**  
Dementia with Lewy bodies (DLB) is the third most common dementia affecting up to 20% of all dementia patients. Characteristically, patients present with fluctuating cognitive impairment, delusions, visual hallucinations, falls and urinary incontinence. On examination, many patients may show some degree of parkinsonian features which is usually, but not always, of less severity than those seen in Parkinson's disease. DLB patients are exquisitely sensitive to neuroleptic medication especially typical ones such as haloperidol and chlorpromazine, which should be avoided. In DLB, unlike Parkinson's disease, the Lewy bodies are not restricted to subcortical regions but are also found in the cortex, hence, DLB is known as cortical Lewy bodies disease.

No.: 37

A 75-year-old woman was seen in the memory clinic with a 1 year history of forgetfulness. Neighbours have reported that she has attempted on many occasions to try to enter their house by using her keys on their door. There was also an incident 2 weeks earlier when the police found her walking down the high street near her house at 3.00 am. She told the police that she was going to the shop to buy bread and was unable to tell them where she lives straightaway. After taking history from the patient and her daughter who lives 20 miles away, a common form of dementia was strongly suspected .

All of the following tests may significantly aid in the diagnosis:

Options Choose 5

- A. MRI scan of the brain
- B. Neuropsychological assessment
- C. EEG
- D. Physical examination
- E. SPECT
- F. Lumbar puncture

No.: 37

**A B D E F**  
EEG in dementia patients produces a non-specific wave slowing which does not help significantly in the diagnosis, the exception being a rare form of dementia caused by CJD. MRI scan may rule out or confirm the presence of extensive cerebrovascular disease as a cause of this woman's dementia. Neuropsychological assessment is an important part of dementia investigations and may highlight deficits in specific cognitive domains. SPECT scanning is increasingly being used to differentiate between Alzheimer's disease and vascular dementia .  
An examination of the cerebrospinal fluid would be an important part of excluding an inflammatory cause.





No.: 38

An 89-year-old woman attended the local memory clinic for the first time with her son who reported a 3 year history of gradual worsening of her memory. The son suspected that her memory problems started after having an operation to replace her right hip. Assessment at the memory clinic revealed poor orientation to time and place but not person, poor learning of new materials and definite short term memory deficits. Her long term memory, immediate recall and visuospatial abilities were intact.

Initial investigations of her condition are likely to include:

Options Choose 5

- A. Syphilis serology
- B. CT / MRI scan of the brain
- C. Lumbar puncture
- D. B12/folate levels
- E. Thyroid function tests
- F. EEG
- G. Clotting studies

No.: 38

A B C D E

Initial investigations for people suspected of memory impairment are likely to include thorough history from patient and carer, mental state examination, physical/neurological examination, a dementia blood screen (U/Es, TFTs, LFTs, calcium, FBC, ESR, B12/folate, Syphilis serology, random glucose, Cholesterol, neuropsychological assessment and CT/MRI scan. SPECT scanning in specialist centres is reserved for cases presenting with diagnostic difficulties. Depending on the particular presentation, a lumbar puncture may be indicated to exclude certain neurodegenerative disorders or encephalopathies. An EEG may rarely help as this may pick up patterns suggestive of CJD, for example.

No.: 39

i. a man in his seventies was admitted to a medical ward with acute exacerbation of his asthma. whilst on the ward, the sho noticed that he is very confused and forgetful. the doctor suspected a dementia illness. which of the following would support a diagnosis of alzheimer's disease:(option a- e )

ii. the man later developed a bronchopneumonia and died despite intensive treatment. a post mortem examination was requested. characteristic findings in his brain supporting a diagnosis of alzheimer's disease include all of the following except:( option f-j)

Options Choose 3

- A. History of alcohol misuse
- B. Enlarged cortex
- C. History of hypothyroidism
- D. Hypoperfusion to temperoparietal region
- E. Thinning of medial temporal lobes
- F. Shrunk cortex
- G. Pick's bodies
- H. Neurofibrillary tangles
- I. Neuritic plaques
- J. Beta amyloid deposition

No.: 39

D E G

Alzheimer's disease is the most common type of dementia affecting about 55% of all patients with cognitive impairment. Characteristically there is shrunken cortex and enlarged ventricles. In addition to thinning of the medial temporal lobes, there is hypoperfusion to temperoparietal region as seen on SPECT/Pet. Microscopic findings include the abundance of extracellular neuritic plaques and neurofibrillary tangles. It is suspected by many that pathological aggregation and deposition of beta amyloid in the brain is the initiating event leading over time to cell death and the resultant cognitive impairment. Pick's bodies are not seen in Alzheimer's.





No.: 40

A 76-year-old man with a history of heavy smoking, hypertension and hypercholesterolaemia was admitted to one of the local medical wards following a stroke which was confirmed by an MRI scan of the brain. Although he made a good recovery 4 weeks later, with the help of the physiotherapist, the family complained that his memory, which was **spot on** before admission, has suddenly deteriorated. He has become confused and **muddled** and started to ask the same questions repeatedly and had problems retaining information. Concerned about his memory deterioration, his consultant requested the advice of the old age psychiatrist.

Which one of the following statements is correct regarding this man's memory impairment :

Options Choose 4

- A. He is more likely to develop a depressive illness than someone with Alzheimer's disease
- B. He is more likely to respond to anti-depressant treatment than someone with Alzheimer's disease
- C. He is more likely to retain his insight than a patient with Alzheimer's disease
- D. Delirium rarely occurs in patients with similar presentation
- E. Vascular dementia may be diagnosed without any evidence of a stroke
- F. Diabetes is a risk factor for this type of disease
- G. Other psychiatric disorders do not occur with this disease

No.: 40

A C E F

Vascular dementia is the second most common form of dementia occurring in about 20-25% of all patients with dementia. It may result from a strategic infarct, however, vascular dementia is also diagnosed in those who have no evidence of a stroke. Such patients usually show evidence of cerebrovascular / small vessel disease on MRI or SPECT. Many patients diagnosed with vascular dementia give a history of TIAs. During investigation, thorough history needs to be obtained regarding cerebrovascular risk factors such as hypertension, history of smoking, hypercholesterolaemia, high lipids, diabetes and angina/MI. Investigations of patients with suspected vascular dementia (previously known as multi-infarct dementia) is similar to that of other dementia disorders. Patients with vascular dementia are more likely to retain insight and develop depression than someone with Alzheimer's disease, but are less likely to respond to antidepressant treatment.



No.: 41

An 85-year-old woman was admitted to the medical ward with fever and sweats. The staff at the nearby nursing home noted that she has refused her meals for the past 2 days and has been off colour. Following a physical examination and initial investigations, a UTI was diagnosed and an antibiotic was started. However, 24 hours past admission she has become very agitated and confused and presented with illusions, visual hallucinations, paranoid delusions, and poor orientation, attention and concentration. Nursing staff found her to be very difficult to nurse as she was constantly pacing up and down the ward and trying to leave. She also was interfering with other patients and on one occasion she lashed out against a nurse who was offering her medication. All these symptoms seemed to intensify at night.

The most likely diagnosis of this patient is :

Options Choose 1

- A. Very late onset schizophrenia-like illness
- B. Psychotic depression
- C. Delirium
- D. Dementia
- E. Panic attacks
- F. Cerebrovascular disease
- G. Generalised anxiety disorder

No.: 41

C

Delirium or acute confusional state is a common condition among older people admitted to acute medical wards. Patients may present with illusions, hallucinations (mainly visual), paranoia, labile mood, depression, anxiety, aggression, restless, poor orientation, and poor immediate and short term memory. Despite this clinical picture the condition is misdiagnosed and/or under diagnosed in a significant number of patients.





No.: 42

A 21-year-old man who was studying for a maths degree at a university returned home unexpectedly. He told his parent that he needed to return to save his hometown from an impending disaster brought on by aliens and that he alone had the special powers to do so. His parents noticed that he was speaking very fast and loud and at times in rhymes. He was moving from one subject to another without ever completing what he wanted to say. And when his father questioned him and suggested that he may be unwell he became very angry and hostile. The police was eventually called in and the man was found naked in the street singing and shouting at passer-bys. He was removed under section 136 of the MHA to the local police station where he was assessed by the duty psychiatrist and social worker. His parents who were present at the police station reported that their son had no previous history of mental illness and that he always got on well with them and his friends before this episode. They described him as the ideal son.

Differential diagnosis of this man's illness should include:

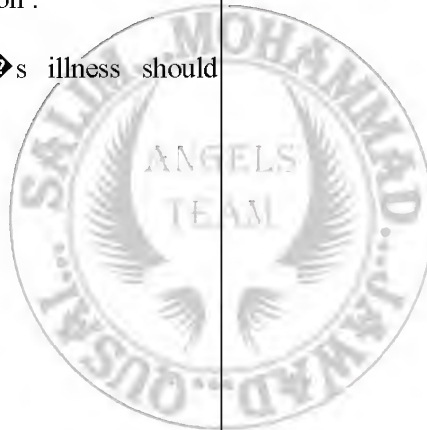
Options Choose 3

- A. Paranoid schizophrenia
- B. Depression
- C. Mania with psychosis
- D. Drug induced psychosis
- E. Psychopathic personality disorder
- F. Obsessive compulsive disorder
- G. Generalised anxiety disorder

No.: 42

A C D

It is not always possible in acute psychiatric practice to make a diagnosis based on first assessment. A period of observation on the ward is usually needed. This man is presenting with grandiose delusions, pressure of speech, flight of ideas, rhyming and aggression. These symptoms are commonly encountered in those who present with mania, however, other disorders should also be considered in a 21 year old man at this early stage. These should include paranoid schizophrenia and drug induced psychosis. Although an underlying psychopathic personality cannot usually be ruled out on first assessment, no evidence in the history to support such a diagnosis.







<p>No.: 43</p> <p>A 24-year-old man with known history of schizophrenia was brought to his local A/E by his social worker following a suspected relapse of his illness. While being examined by the SHO he became very violent and tried to attack him. He also smashed the chair on the wall of the cubicle. Subsequently, he needed to be restrained by 5 staff.</p> <p>Steps which may need to be taken immediately by the attending doctor include :</p> <p>Options Choose 3</p> <p>A. Prescribe iv lorazepam B. Prescribe iv haloperidol C. Arrange for an urgent MRI scan of the brain D. Call duty psychiatrist E. Obtain a urine sample F. Use of a gag</p>	<p>No.: 43</p> <p>A B D</p> <p>Physical restraint and rapid tranquilisation may be considered in patients who present a definite and imminent risk to themselves and others. A small dose (im or iv) of an antipsychotic and a benzodiazepine may be administered in those who refuse to take oral medication. Patients should also be transferred to the local psychiatric unit where a patient may be nursed in a safer environment. Although a urine test to check for any illicit drugs is of great help to rule out a drug induced psychosis, this will need to wait until the patient is able to cooperate and its is practical to do. An MRI scan should be requested when the clinical presentation clearly indicates a neurological cause for the presentation and when it is safe to do so . A gag is potentially dangerous.</p>
<p>No.: 44</p> <p>A 14-year-old girl was referred to the local child psychiatrist by her GP who was concerned about her weight loss. The GP reported that she has lost about 2 stones over the past 2 months and that although she was preoccupied by preparing food, she did not seem to be eating well. Her mother reported that she has been hoarding food in her bedroom. The mother also informed the GP that despite losing weight her daughter was spending long time every day undertaking heavy exercises. Which of the following supports a diagnosis of anorexia nervosa in this patient:</p> <p>Options Choose 5</p> <p>A. Loss of over 15% of body weight B. Binging on fatty food C. Increased levels of growth hormone D. Increased levels of cortisol E. Absence of depressive features F. Amenorrhea G. Use of diuretics</p>	<p>No.: 44</p> <p>A C D F G</p> <p>Anorexia nervosa is a serious psychiatric disorder affecting girls and young women. It may also affect males who make less than 10% of all patients. The onset is usually in the teen years. It is very rare in middle age and beyond. Patients usually present with 15% or more body weight loss. Patients routinely avoid fattening food and indulge in excessive exercises, self-induced vomiting and use of diuretics. The main psychopathology behind the illness is distortion of body image and morbid fear of fatness. In addition to amenorrhoea, patients may also have elevated growth hormone and cortisol levels. Treatment of the condition may include hospital admission to restore weight and psychotherapy. Prognosis is variable.</p>





No.: 45

A 35-year-old woman was rushed to A/E after collapsing at work. An ECG showed an abnormal rhythm and U/E's showed severe hypokalaemia. Further investigations failed to identify a cause for her presentation. After correction of her potassium levels she was discharged from hospital to be followed closely in the outpatient clinic. Concerned about her admission to hospital, the woman then visited her GP and informed him of recurrent binge eating. The woman told her doctor that she has lost control over her eating behaviour and she felt very stressed and needed help. The GP then suspected that she may be suffering from an eating disorder and referred her to the local psychiatrist. On further questioning by the specialist the patient admitted to episodes of excessive eating of fattening food followed by induced vomiting. Which statement is correct regarding this woman's illness:

Options Choose 3

- A. She could not have suffered from anorexia nervosa in the past
- B. Her condition occurs equally among men and women
- C. She is likely to have schizophrenia
- D. She may have a normal weight
- E. Her illness is common in Africa
- F. There may be associated mood disturbance
- G. Laxative abuse occurs

No.: 45

D F G

Bulimia nervosa occurs mainly among women, although a minority of sufferers are men. It is much more common than anorexia nervosa and occurs somewhat later in life. Patients may compensate for binge eating by self-induced vomiting, excessive use of diuretics and laxatives, and exercise. A significant minority of patients present with a previous history of anorexia nervosa. Unlike anorexia nervosa, some patients with bulimia nervosa may have normal or increased weight.



No.: 46

A 32-year-old woman was brought to the outpatient clinic by her husband and was subsequently admitted to a mental health ward. The husband reported that she has a 5 year history of manic episodes and that she has been admitted on 2 previous occasions with relapse of her illness. The senior house officer who reviewed the previous admission notes found that she remained in hospital for 6 weeks during the previous admission and that she was treated with a mood-stabiliser and an anti-psychotic. Which of the following statement/s is correct regarding the current admission:

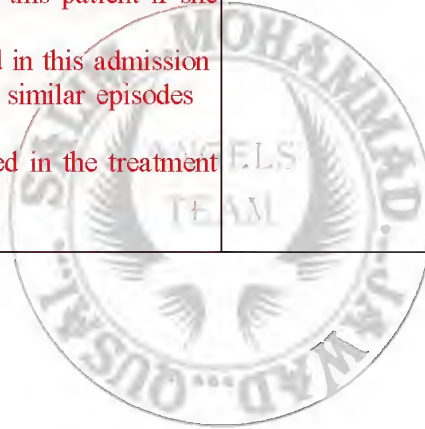
Options Choose 3

- A. It is very rare that depression is a cause of her current admission
- B. If she was maintained on lithium she would have had less than 10% chance of relapse
- C. Hyperthyroidism is a possibility in this patient if she was maintained on lithium
- D. Benzodiazepines should not be used in this admission
- E. She has increased chance of further similar episodes
- F. The risk of self harm is increased
- G. Sodium valproate is sometimes used in the treatment of this disorder

No.: 46

E F G

It is not uncommon for patients who had presented with mania on previous occasions to present with depression. Mood-stabilisers such as lithium, carbamazepine and sodium valproate are used routinely in the management of bipolar affective disorders. In the case of lithium, it was initially thought that up to 80% respond to such treatment, but now it is thought that about 50% do so. Hypothyroidism, and not, hyperthyroidism is a frequently encountered side effect of lithium treatment. Benzodiazepines may be used in acute episodes especially when there is agitation and aggression.





No.: 47

A local general practitioner became very concerned about the mental health of a 38-year-old female patient who he has visited at home following a request from the woman's sister. The GP found her flat to be in a state of total neglect. The patient has been refusing to eat or drink for 2 days and was somewhat dehydrated and has lost weight recently. She refused to engage with the doctor and remained mute during the assessment. The sister reported that the patient was well previously but became withdrawn 2 weeks ago. Previous to that she was very distressed when her partner left her. The sister also reported that her only child died of cancer last year.

The following statement/s is correct :

Options Choose 4

- A. She may have delusional ideation
- B. A mental health assessment regarding compulsory admission must be avoided
- C. Her current illness may be related to her child's death
- D. Psychomotor retardation will rule out a depressive illness
- E. ECT may be the treatment of first choice
- F. There is an increased risk of self harm

No.: 47

A C E F

The patient is presenting with the features of a depressive illness, and one cannot rule out psychotic features based on the information provided. This patient is potentially a danger to herself through self-neglect and would need an urgent admission to hospital. If the patient refused, then a mental health assessment by a social worker and 2 doctors is warranted and patient may be admitted to hospital under section. If patient refused to accept treatment, an ECT course may be indicated especially as the patient is refusing to eat and drink. Psychomotor retardation would support the diagnosis of a severe depressive illness.



No.: 48

A 26-year-old man was recently diagnosed with schizophrenia and started on haloperidol. Three weeks later he presented to casualty in a highly agitated state. He was confused, pyrexial (temperature 39 °C), tremulous and appeared to have marked limb rigidity .

Investigations :

Na 137 mmol/l

K 5.4 mmol/l

Urea 8.8 mmol/l

Creat 148 umol/l

Creatine kinase 3500

Haemoglobin 13.9 g/dl

WCC 24.8 x 10<sup>9</sup>/lPlt 490 x 10<sup>12</sup>/l

What is the most appropriate drug therapy for this patient?

Options Choose 1

- A. Acyclovir
- B. Bromocriptine
- C. Cefotaxime
- D. Increase dose of haloperidol
- E. Prednisolone

No.: 48

This man has neuroleptic malignant syndrome and displays the classic triad of pyrexia, extra-pyramidal effects and confusion. It occurs within the first few weeks of starting neuroleptic therapy and haloperidol is the commonest cause overall. CK is frequently raised and full-blown rhabdomyolysis with renal failure can develop. The untreated mortality is of the order of 10-30%. The most important therapeutic manoeuvre is withdrawal of neuroleptic therapy, but both bromocriptine and dantrolene have been used and found to reduce the duration of symptoms. Other supportive measures including appropriate fluid resuscitation are very important.







No.: 49

A 78-year-old man attended the cardiology clinic for a routine follow-up appointment. He had presented to hospital with acute dyspnoea 6 months previously and had been diagnosed with severe aortic regurgitation. During his admission, he had undergone aortic valve replacement with a mechanical valve .

During the consultation he says he feels well with no dyspnoea on exertion or peripheral oedema. His international normalized ratio (INR) has been in the therapeutic range and is checked regularly in the anti-coagulant clinic. His only complaint is of difficulty in sleeping, which he says started when his wife died suddenly 1 year previously. He wakes at 4 am and has difficulty in getting back to sleep. He lives alone and says life no longer holds any real meaning for him since the death of his wife. In recounting his wife's death he is very tearful and says that he often cries without any apparent reason .

What would be the best choice of anti-depressant for this gentleman?

Options

- A. Amitriptyline
- B. Citalopram
- C. Fluoxetine
- D. St. John's Wort
- E. Venlafaxine

No.: 49

A

Citalopram, fluoxetine, venlafaxine and St. John's wort all interact with warfarin. Despite its small risk of arrhythmia amitriptyline is still the best choice for this patient.





No.: 50

A 45-year-old man is hospitalised for treatment of lower back pain. During his hospitalisation for 3 weeks, he receives Lorazepam at the dose of 2mg daily, for insomnia related to discomfort. He has never used sedative-hypnotic agents in the past and on discharge, does not wish to continue with his medication. 12 days after returning home, he telephones his doctor to complain of repeated gruesome nightmares, many of which involve his time in hospital. Treatment for this condition would involve the following :

Options

- A. Psychotherapy
- B. Tricyclic Antidepressants
- C. Benzodiazepines
- D. ECT
- E. SSRIs

No.: 50

**C**

Sleep studies have shown that approximately 25% of total sleep time is rapid eye movement (REM Sleep). This is the period associated with dreaming. Most sedative-hypnotic agents seem to depress this phase of sleep. Thus, when such sedative hypnotics are used for a prolonged period, the brain develops a dreaming debt and when the offending agent is abruptly discontinued; dreaming time is radically increased above normal levels. This is called REM Sleep Rebound. The effect is insomnia laced with frequent and vivid dreams. Once manifested, this effect may persist for as long as 5 weeks. This REM Sleep Rebound can also be an associated finding in substance withdrawal states but it is not in itself an indication of physical addiction. This is one reason why due care needs to be exercised while prescribing benzodiazepines in hospital, especially the ones with significant addictive properties, like Lorazepam.





No.: 51

A 25-year-old man has a 6 month history of believing that people are trying to put ♦bad thoughts♦ into his head and trying to make him do ♦bad things♦. He finds special messages for him in television news reports and the newspaper. He is agitated and paces up and down constantly. His affect is inappropriate, and he laughs as he talks about his persecution. Physical examination is within normal limits. Drug screen is negative. The most likely diagnosis is :

Options

- A. Obsessive Compulsive Disorder
- B. Persistent Delusional Disorder
- C. Paranoid Schizophrenia
- D. Amphetamine Psychosis
- E. Alcohol Withdrawal Syndrome

No.: 51

**C**  
This patient has the classic symptoms of a developing schizophrenic illness, which is characterised by the presence of delusions, hallucinations, symptoms of thought interference, inappropriate affect and bizarre behaviour. Apart from these positive symptoms, the patient might also have negative symptoms like flat affect, poverty of speech, poor motivation and social withdrawal. Lifetime prevalence 1%; onset characteristically in the early 20♦s, but could be any time between 15 and 35. No single aetiological factor, but emerging consensus of neuro-developmental disorder. Course is one of chronic deterioration superimposed by acute exacerbations, post psychotic depression may occur. Better prognosis if acute onset, good pre-morbid social history, presence of positive symptoms and presence of mood symptoms. Treatment is with a combination of antipsychotic medication, which includes the older antipsychotics like Haloperidol and Trifluoperazine, and the newer antipsychotics like Risperidone and Olanzapine (which are becoming increasingly popular). Injectable long-acting antipsychotics like Zuclopenthixol and Flupenthixol can also be used. This needs to be combined with psychosocial treatment measures to manage the negative symptoms of the illness. Family therapy and cognitive behavioural therapy are becoming increasingly popular.

No.: 52

A 41-year-old man is brought in by his exasperated wife with complaints that he washes his hands about 50 times a day. In the evening, he will check the doors, windows and stove at least a dozen times before retiring for the night. He is fearful of the number 3, for example, he will not write out a cheque with a 3 in the number. This man is likely to be suffering from :

Options

- A. Obsessive Compulsive Disorder
- B. Persistent Delusional Disorder
- C. Depressive Disorder
- D. Tourette♦s Syndrome
- E. Hypochondriasis

No.: 52

**A**  
Incidence in general population is around 0.05%. Commonest obsessional thoughts are that of contamination and pathological doubting. The compulsions are based on the obsessional thoughts and rituals of checking; cleaning and avoiding are the commonest. Can commonly co-exist with depression. Frequently found in patients suffering from Gilles de la Tourette♦s Syndrome. Treatment is a combination of behavioural therapy with antidepressants. The tricyclic antidepressant clomipramine has a specific effect on obsessional symptoms. The newer serotonin specific reuptake inhibitors (SSRI-s) are increasingly being used, Sertraline being one of them. Psychosurgery is considered in patients with a history of several years of crippling symptoms. Psychodynamic psychotherapy is contra-indicated, as is it said to make the ruminations worse.





<p>No.: 53</p> <p>A 41-year-old man is brought in by his exasperated wife with complaints that he washes his hands about 50 times a day. In the evening, he will check the doors, windows and stove at least a dozen times before retiring for the night. He is fearful of the number 3, for example, he will not write out a cheque with a 3 in the number. This man would benefit from the following treatment interventions except :</p> <p>Options</p> <p>A. Clomipramine B. Sertraline C. Response Prevention Behavioural Therapy D. Psychosurgery E. Psychodynamic Psychotherapy</p>	<p>No.: 53</p> <p>E</p> <p>Incidence in general population is around 0.05%. Commonest obsessional thoughts are that of contamination and pathological doubting. The compulsions are based on the obsessional thoughts and rituals of checking; cleaning and avoiding are the commonest. Can commonly co-exist with depression. Frequently found in patients suffering from Gilles de la Tourette's Syndrome. Treatment is a combination of behavioural therapy with antidepressants. The tricyclic antidepressant clomipramine has a specific effect on obsessional symptoms. The newer serotonin specific reuptake inhibitors (SSRI-s) are increasingly being used, Sertraline being one of them. Psychosurgery is considered in patients with a history of several years of crippling symptoms. Psychodynamic psychotherapy is contra-indicated, as is it said to make the ruminations worse.</p>
<p>No.: 54</p> <p>A 32-year-old man is brought to the Accident and Emergency Department with tremors in both arms and his face. He is extremely restless and agitated. He is sweating profusely and has tachycardia and dilated pupils. He has been hearing voices for the past 10 days. The most likely diagnosis is :</p> <p>Options</p> <p>A. Brain Tumour B. Viral Encephalitis C. Pheochromocytoma D. Delirium Tremens E. Tardive Dyskinesia</p>	<p>No.: 54</p> <p>D</p> <p>This occurs when an individual who is severely dependent on alcohol stops drinking suddenly or severely reduces his drinking. It is most common in individuals between 30 and 40 years of age and occurs in fewer than 5% of alcoholics. Symptoms include marked tremor of limbs, body and tongue, restlessness, loss of contact with reality, disorientation and illusions progressing to terrifying hallucinations, which are most often visual but may be auditory or tactile. Delusions of a paranoid kind may also rise out of the hallucinations. There is pronounced fever, sweating and tachycardia, with symptoms often worse at night. Management will include admission to hospital, nursing in a uniformly lit room with resuscitation equipment, parenteral multi-vitamin preparations and benzodiazepines like Chlordiazepoxide or Chlormethiazole in progressively reducing dose as a treatment of choice.</p>





<p>No.: 55</p> <p>Intermittent but regular dressing by a man in women's clothes to become sexually aroused is :</p> <p>Options</p> <p>A. Voyeurism B. Transsexuality C. Transvestism D. Incest E. Fetishism</p>	<p>No.: 55</p> <p>C</p> <p>Gender identity with the opposite sex is called transsexualism. Transsexuals believe that they belong to the opposite sex but are trapped in the body of their biological sex of birth. Voyeurism involves sexual gratification from watching sexual acts or naked bodies, particularly the genitals. Compulsive sexual interest in pre-pubertal children by an adult who is at least 10 years older than the child is called paedophilia. Sexual activity between members of a family is called incest. Transvestism is seen in males who have an irresistible and regular compulsion to dress in women's clothes and gain sexual arousal from it. Fetishism is sexual gratification from an inanimate object like an item of clothing or body part.</p>
<p>No.: 56</p> <p>A 63-year-old man was found collapsed. A Department of Psychiatry outpatient Card was found in his jacket, together with a bottle of procyclidine tablets. He was febrile (38.2°C), conscious but unresponsive to commands. The blood pressure was 160/105 mmHg and there was marked muscle rigidity. What is the most likely diagnosis :</p> <p>Options</p> <p>A. Acute catatonic schizophrenia B. Bacterial meningitis C. Cerebral malaria D. Neuroleptic malignant syndrome E. Benzodiazepine overdose</p>	<p>No.: 56</p> <p>D</p> <p>The symptoms are typical of neuroleptic malignant syndrome (NMS). NMS is characterized by fever, muscular rigidity, altered mental status, and autonomic dysfunction. Procyclidine is used to treat the Parkinsonian side-effects of neuroleptics: its presence in the patient's pocket implies that he was taking neuroleptics. Signs of procyclidine overdose include agitation, confusion, and sleeplessness lasting up to 24 hours or more. Pupils are dilated and unreactive to light. Visual and auditory hallucinations and tachycardia have also been reported.</p>

No.: 5



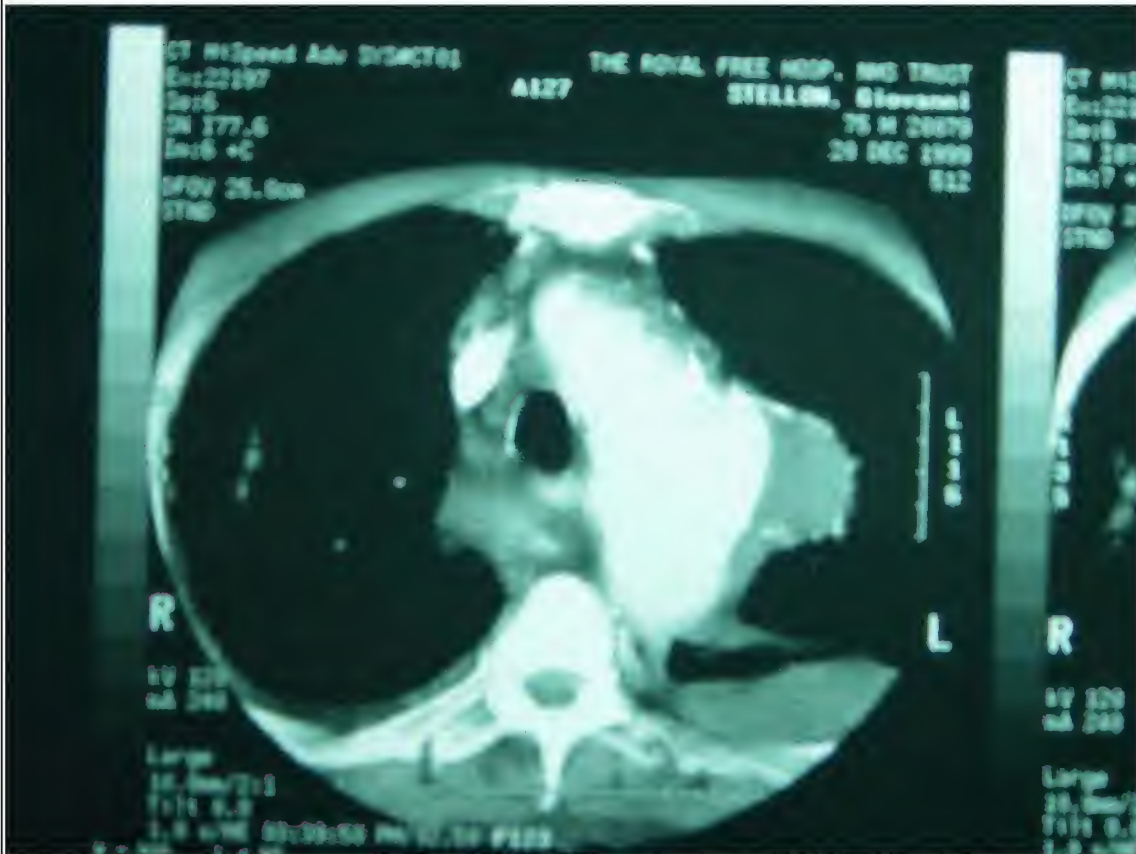
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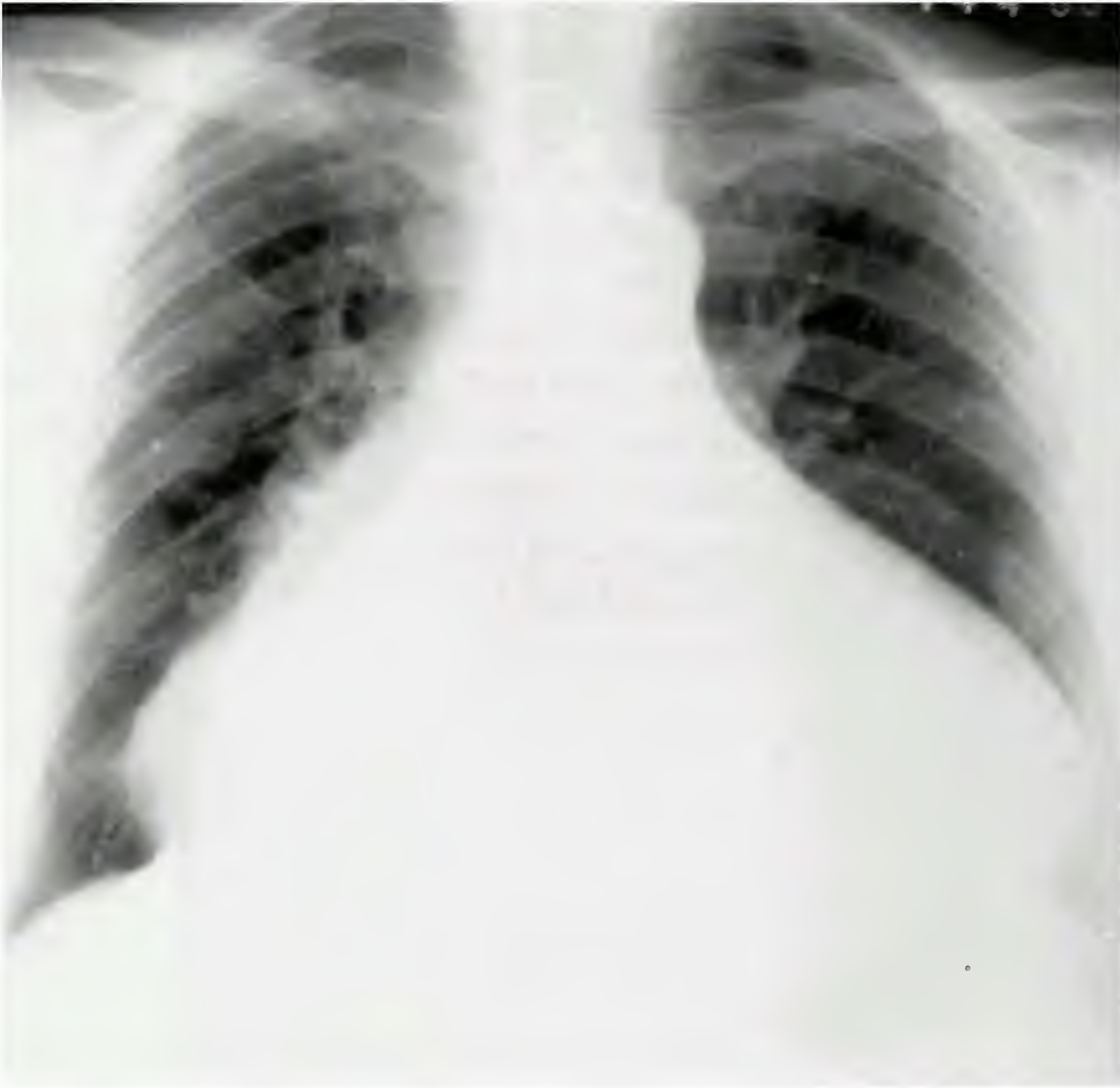
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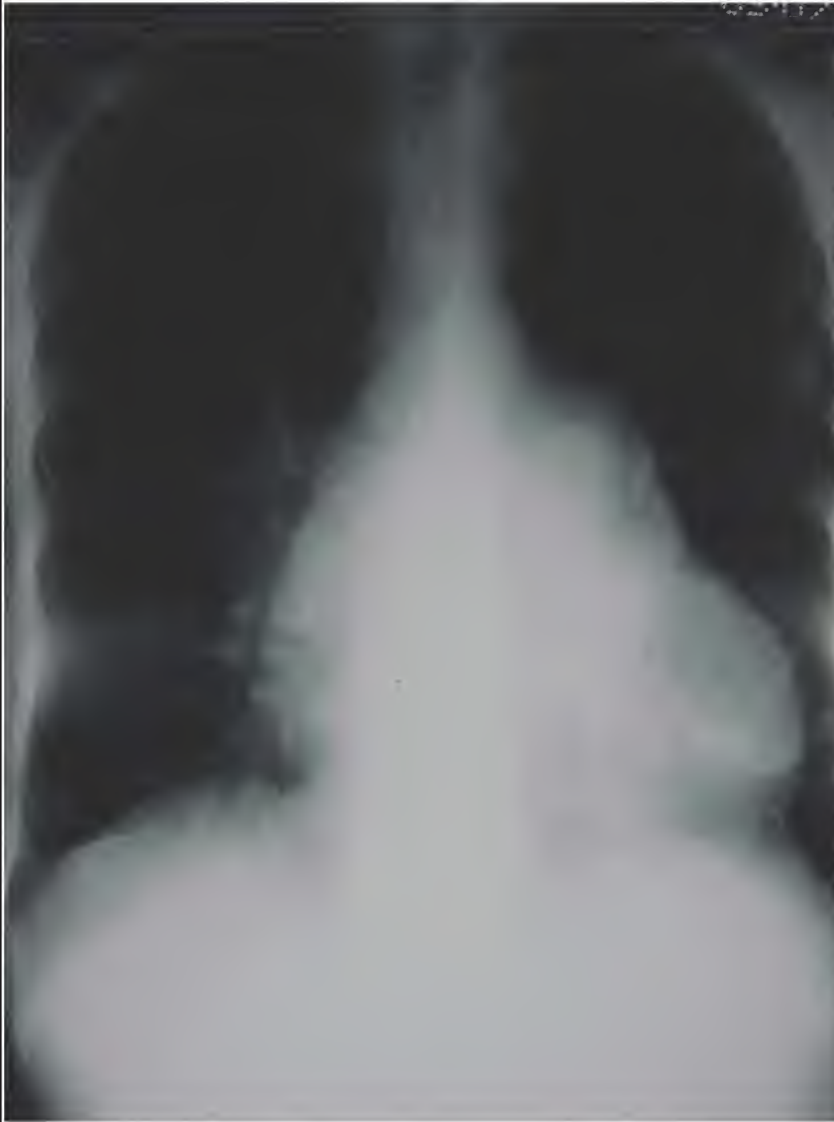
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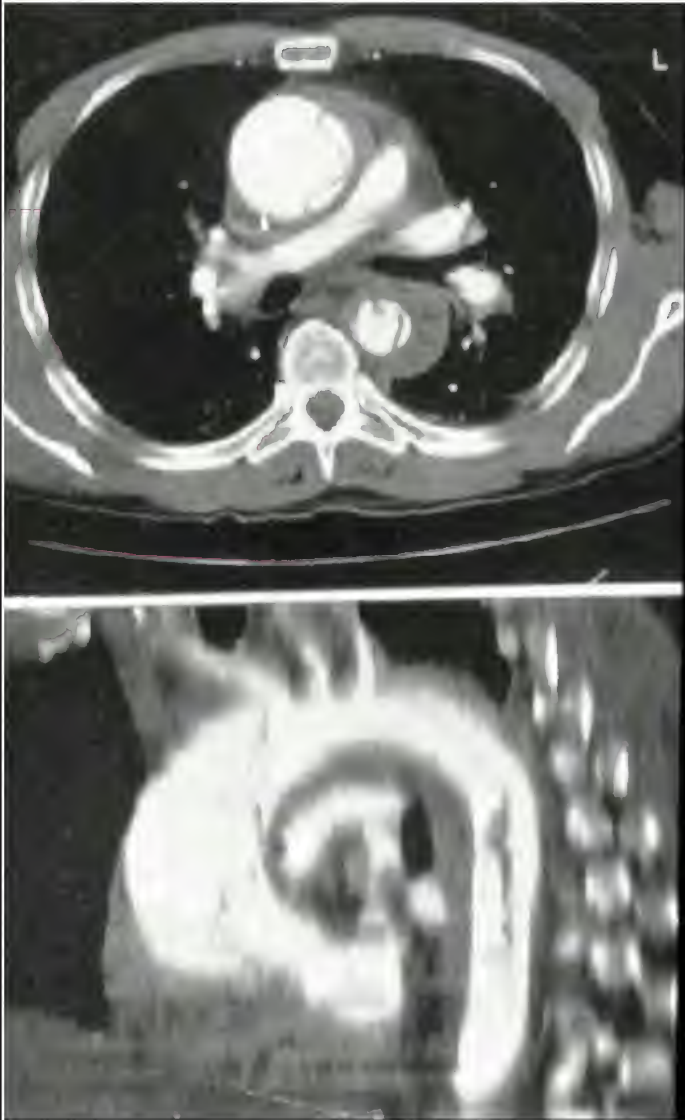


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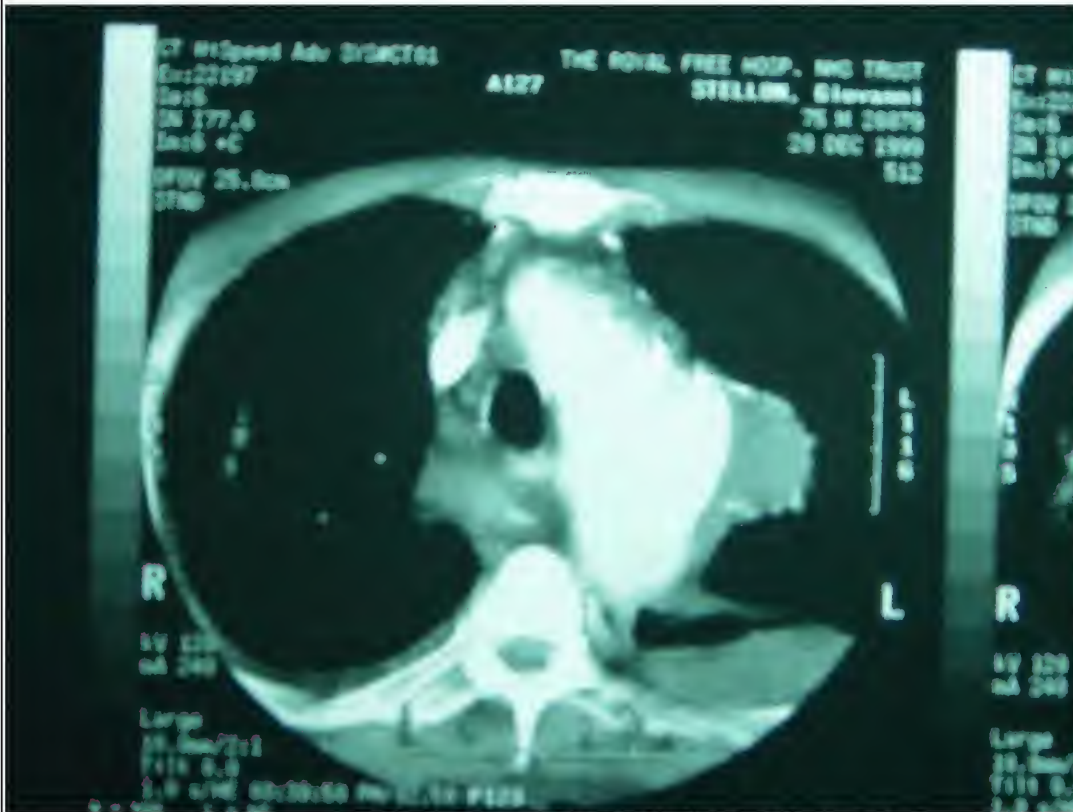
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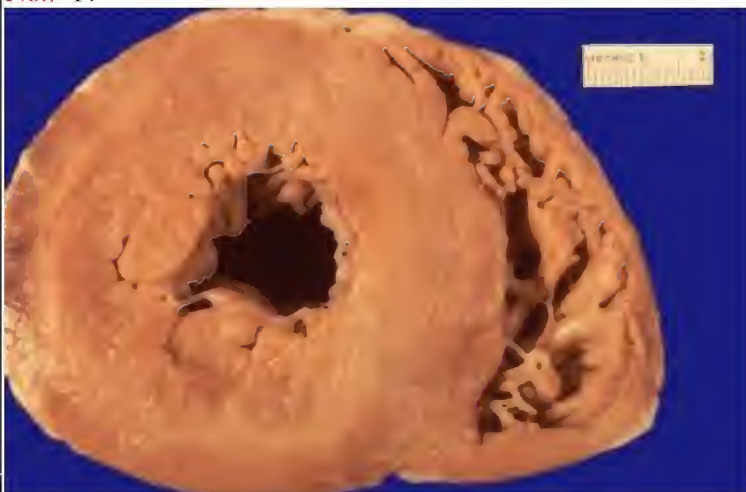
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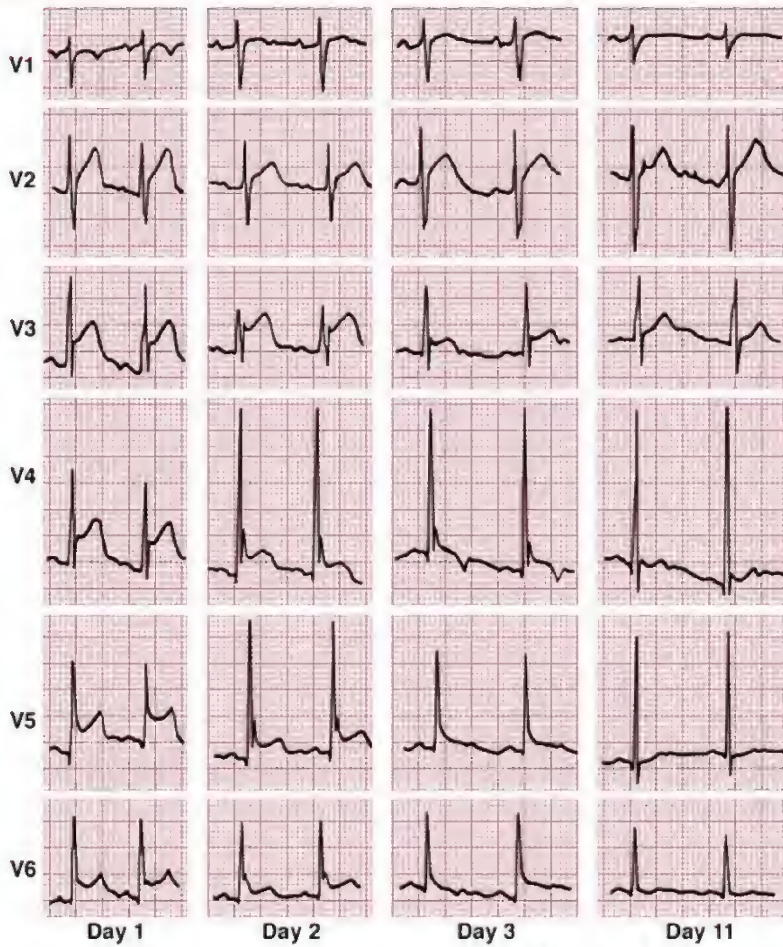


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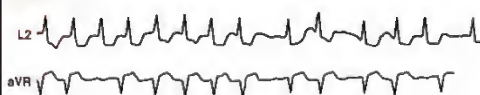
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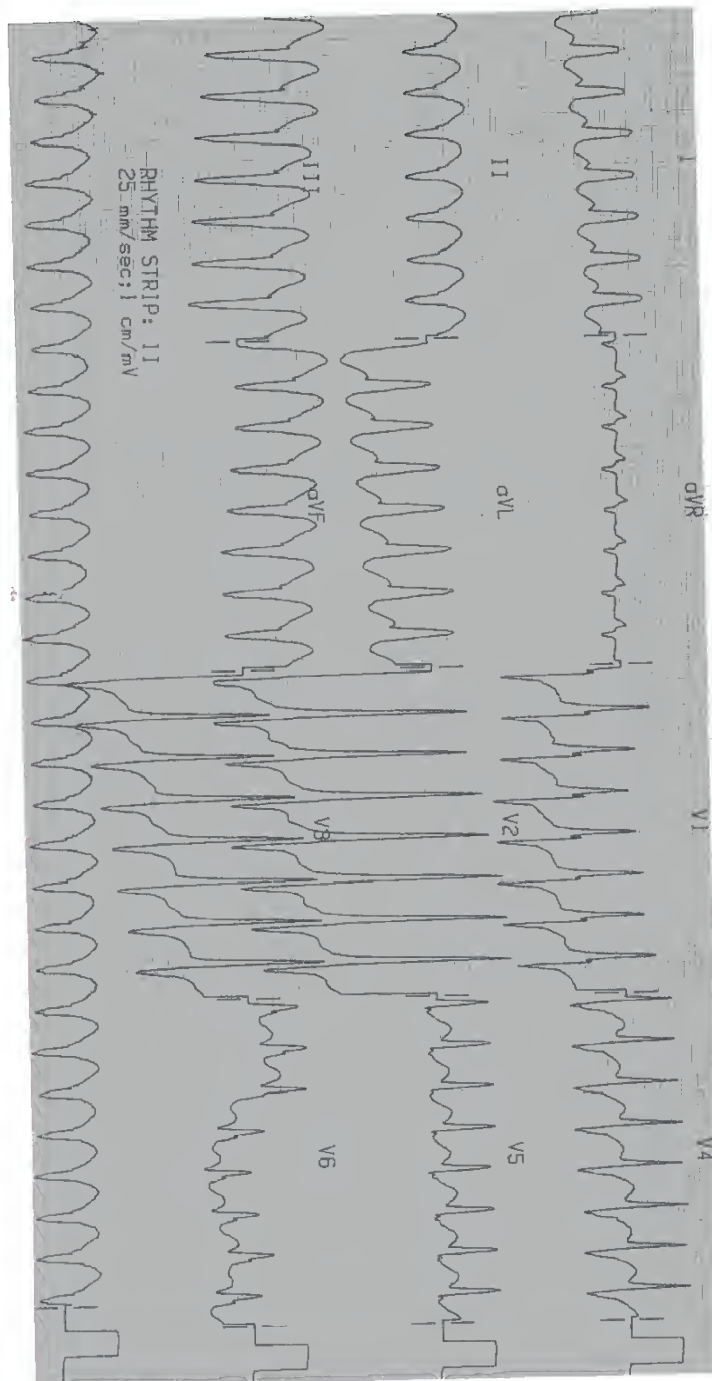


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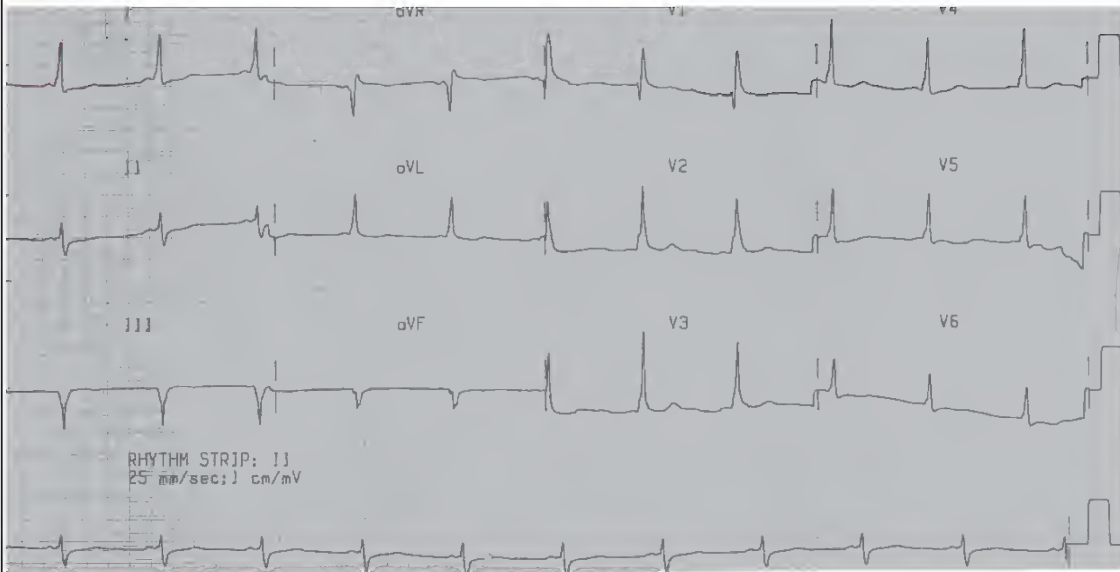




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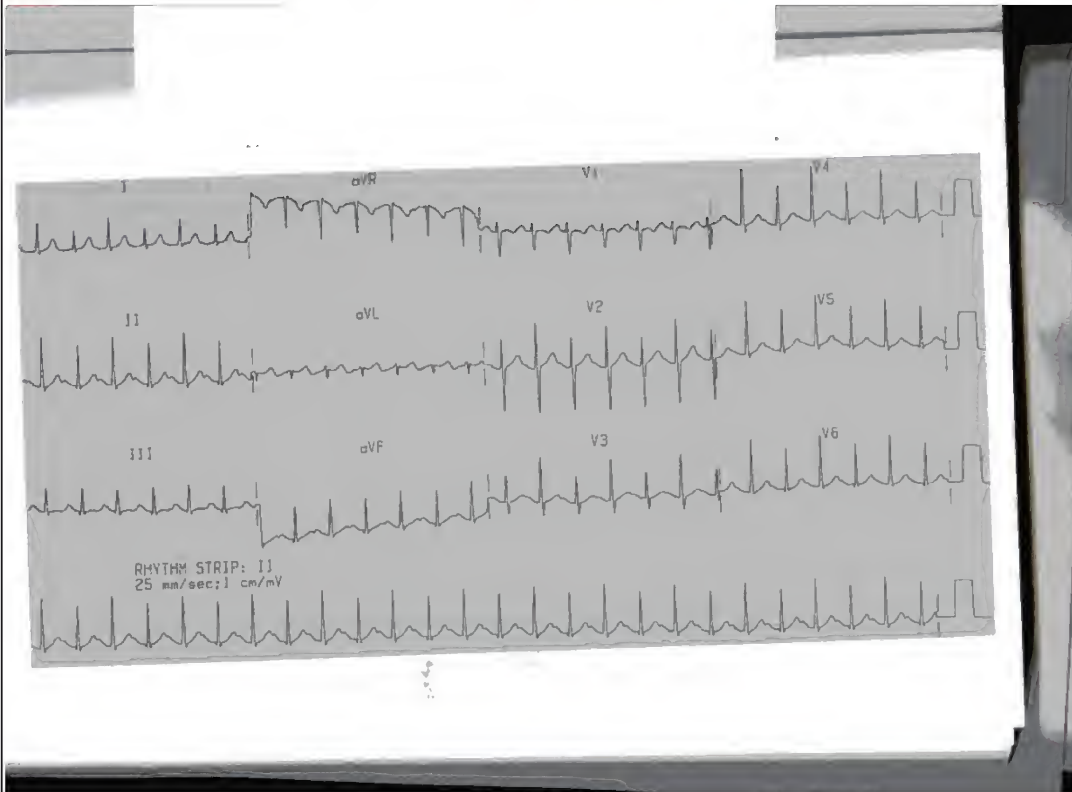
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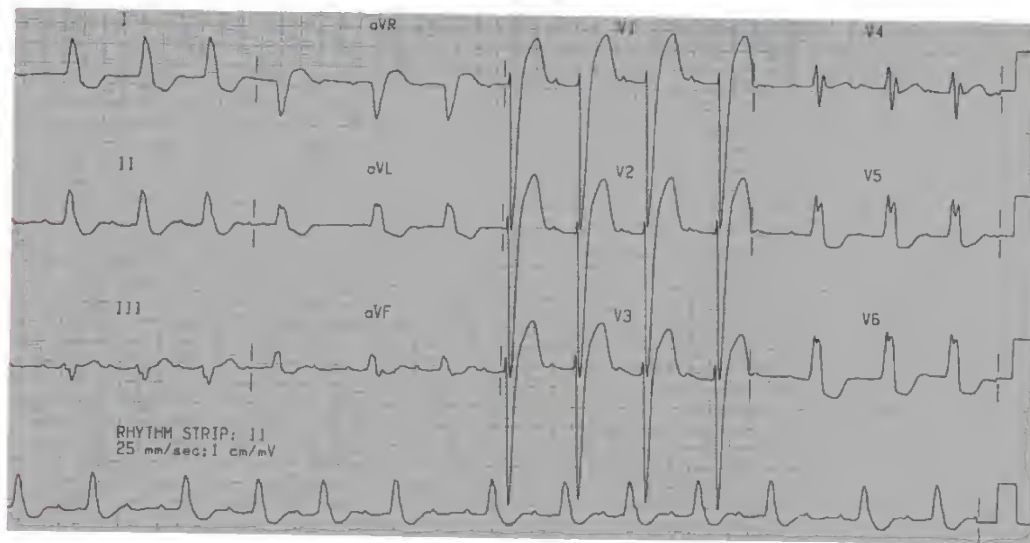
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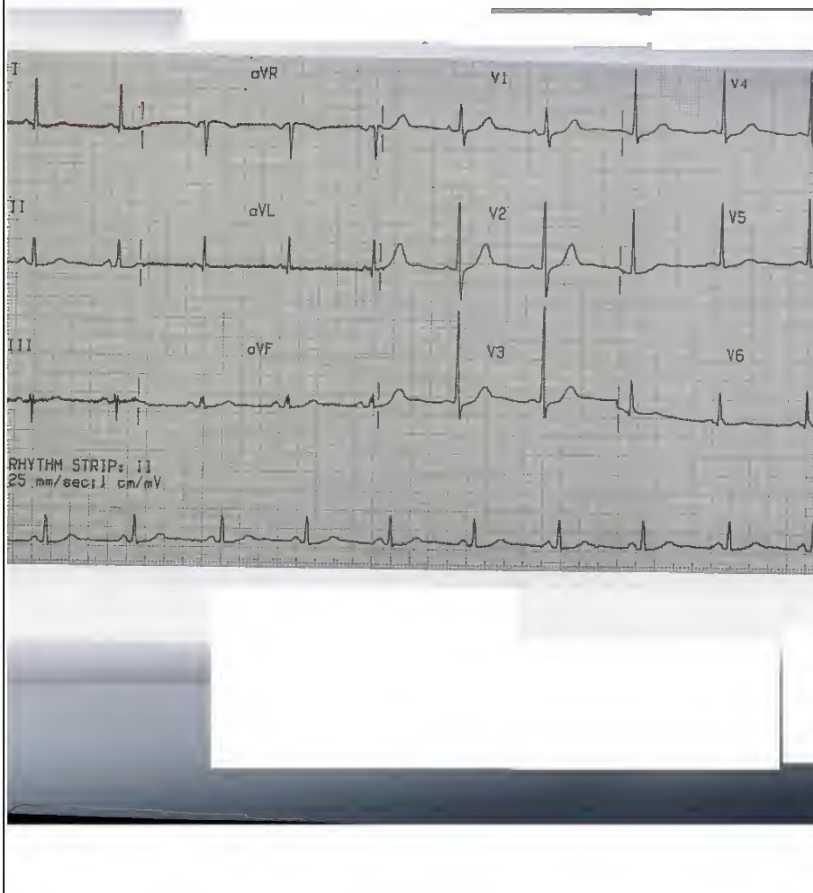


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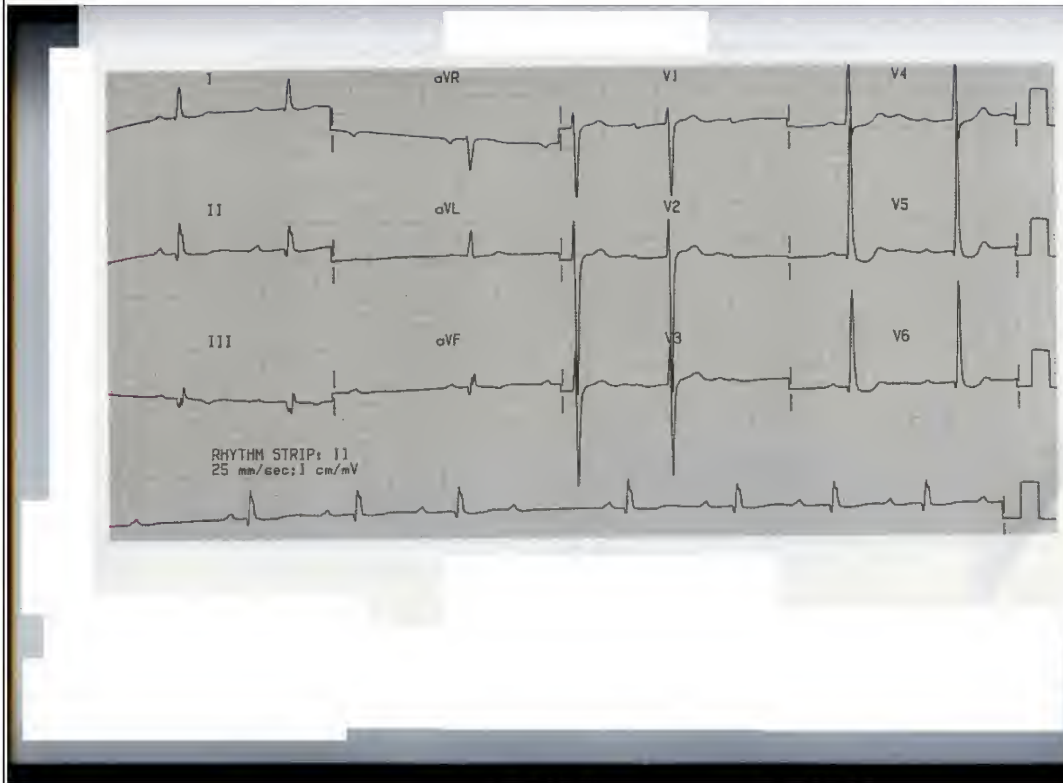




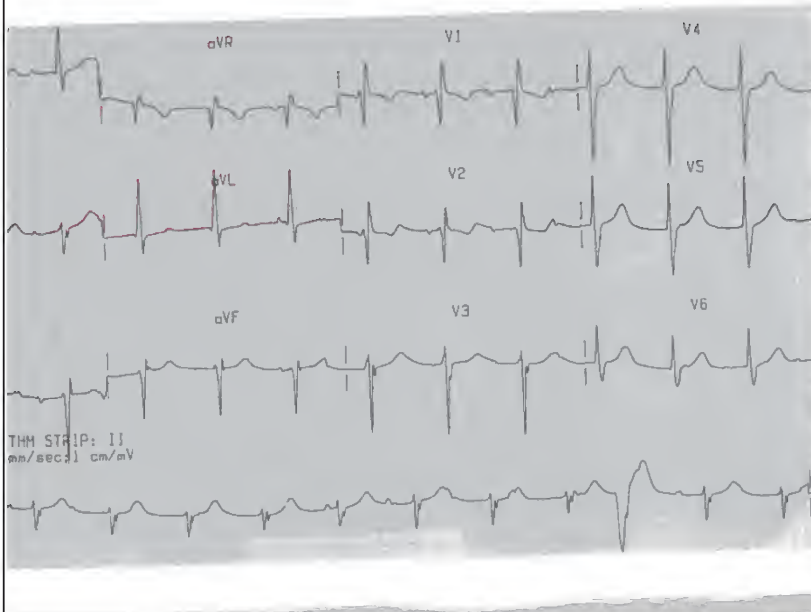
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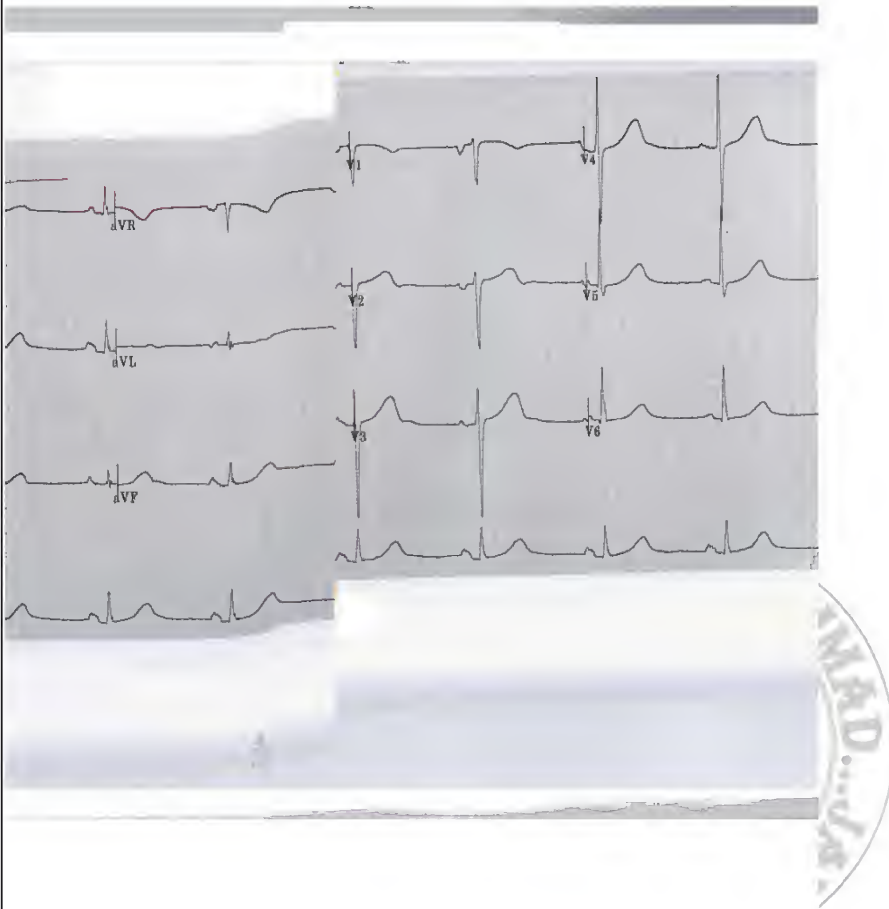
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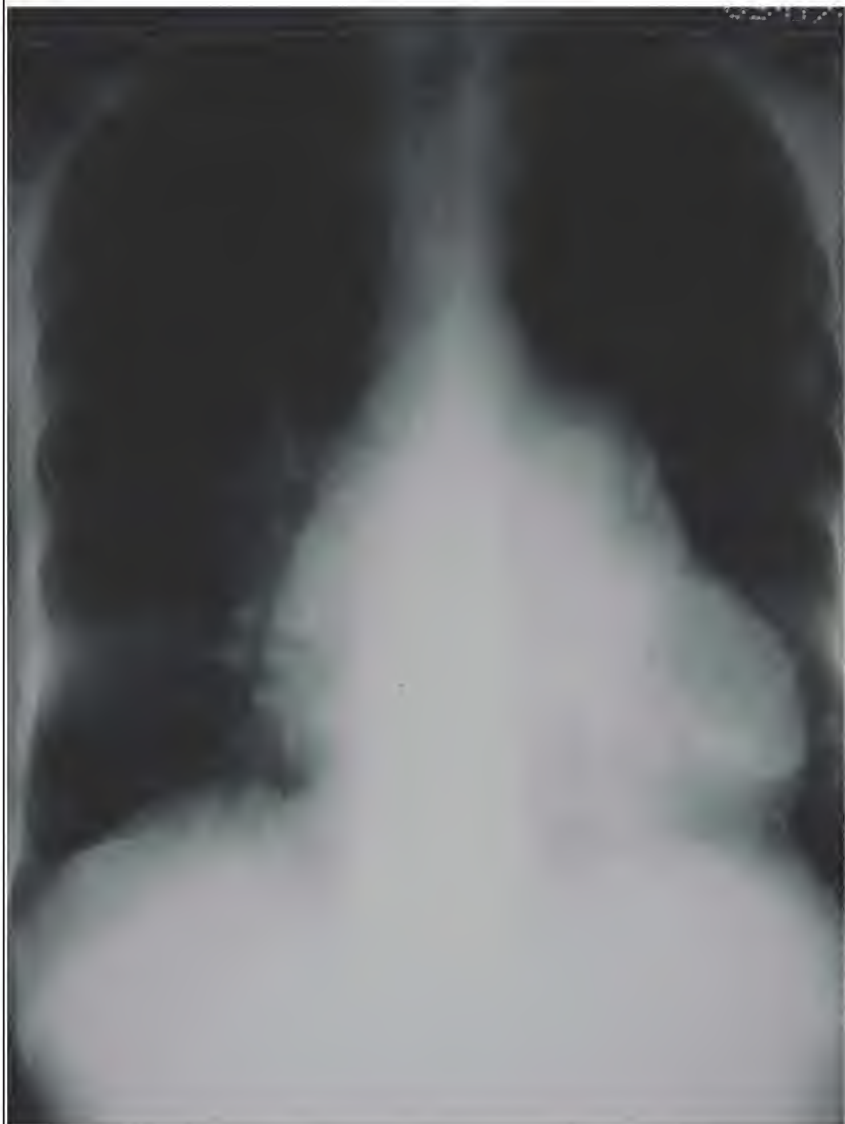
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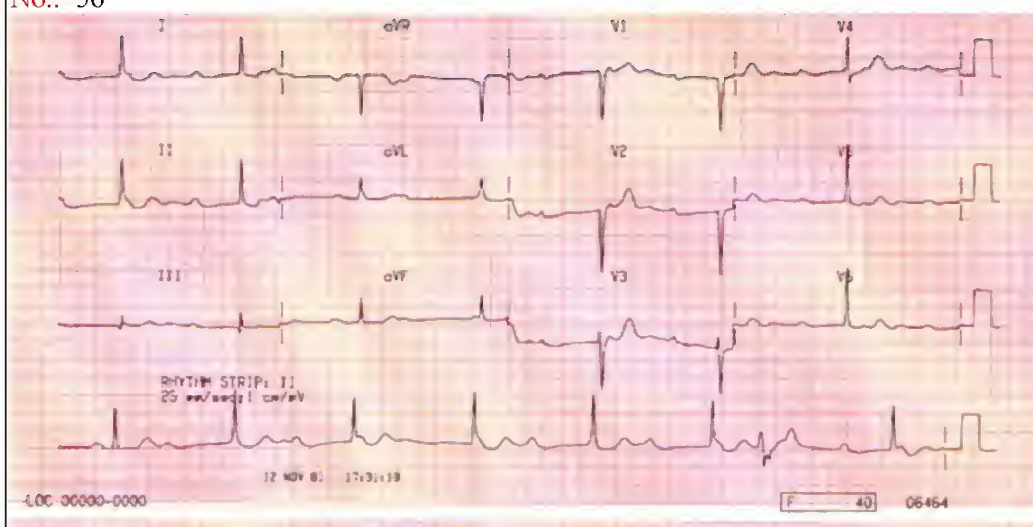
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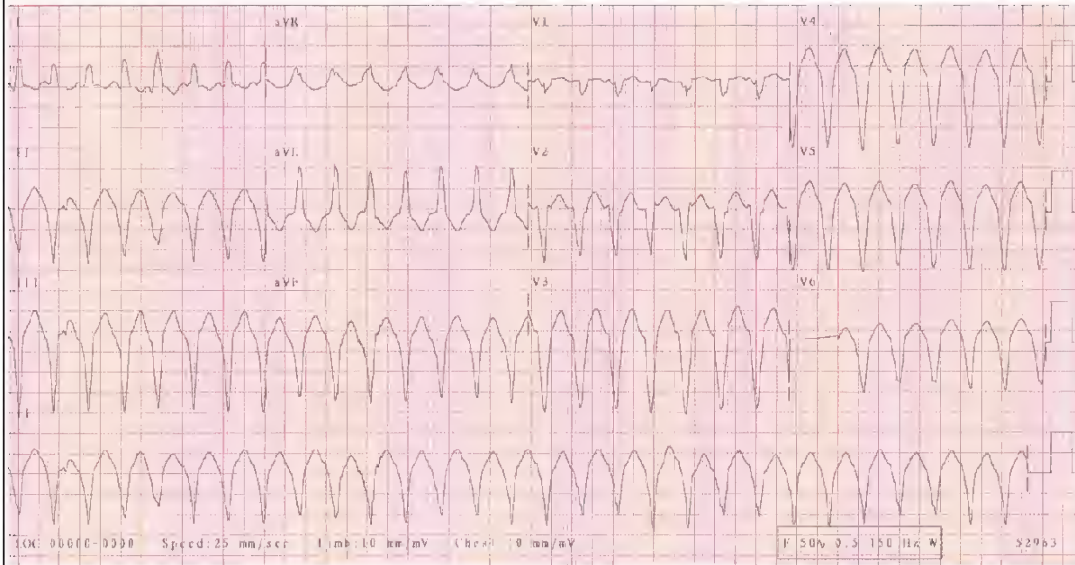


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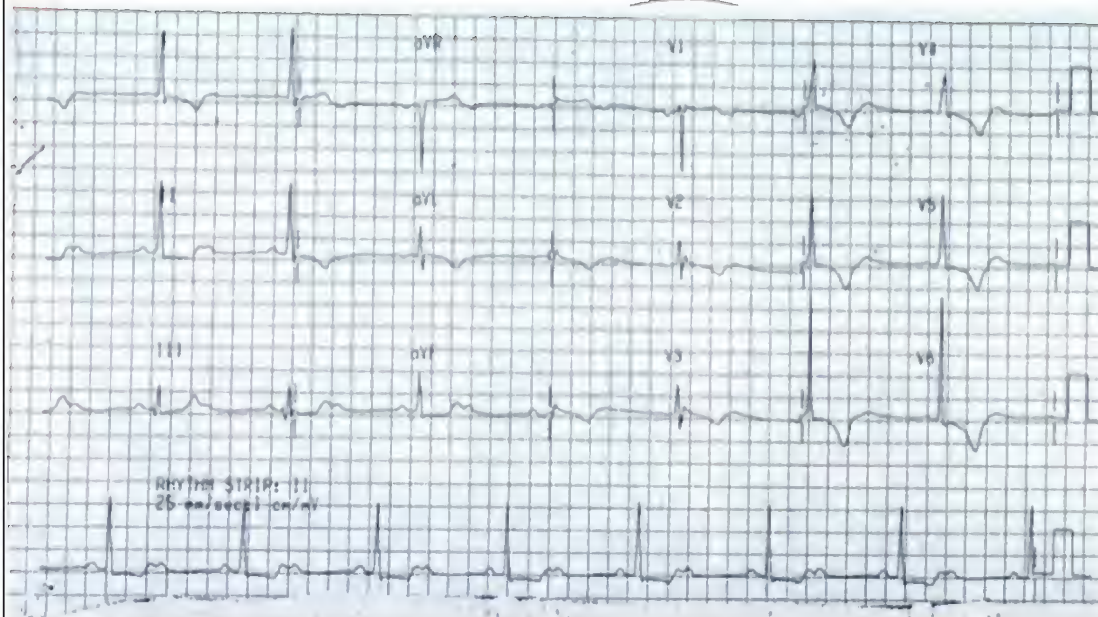




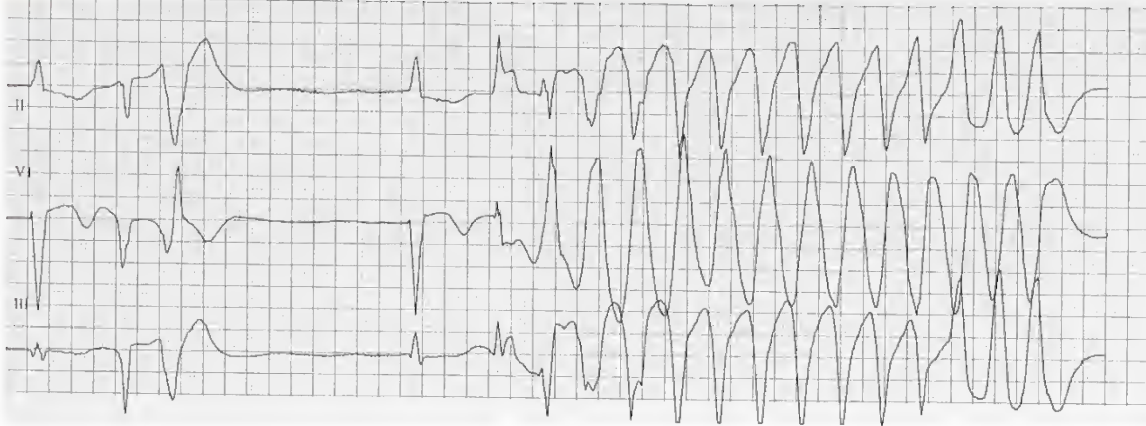
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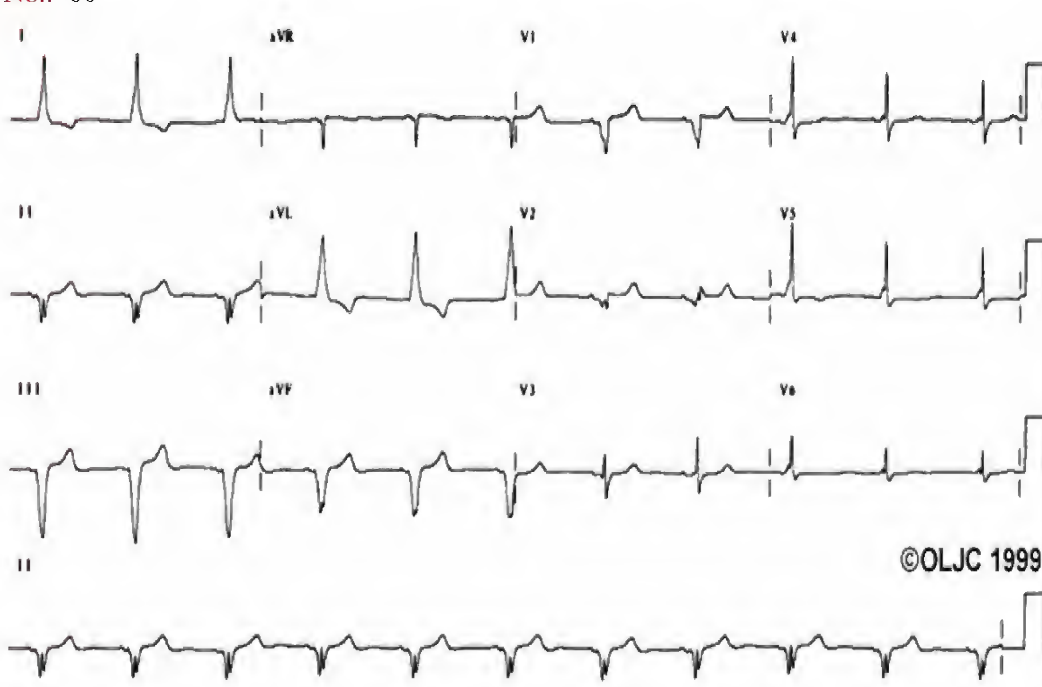
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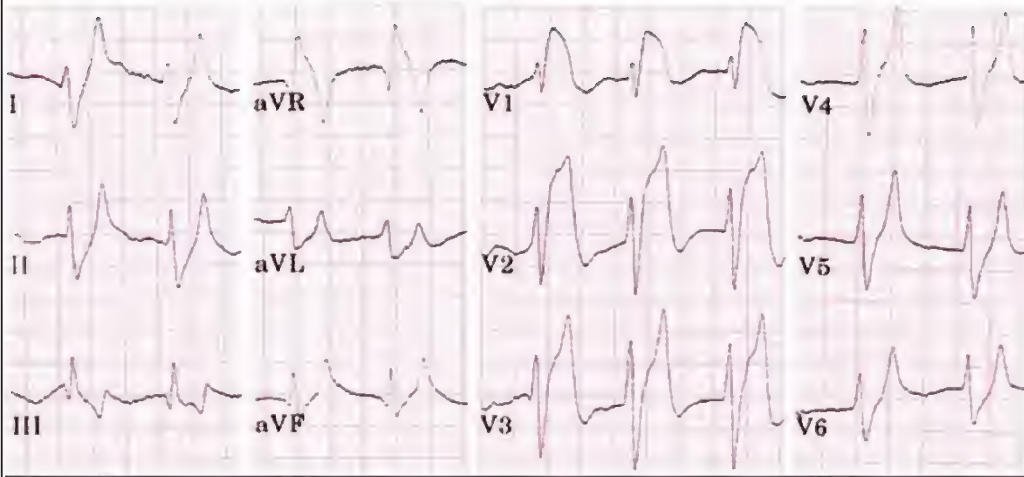
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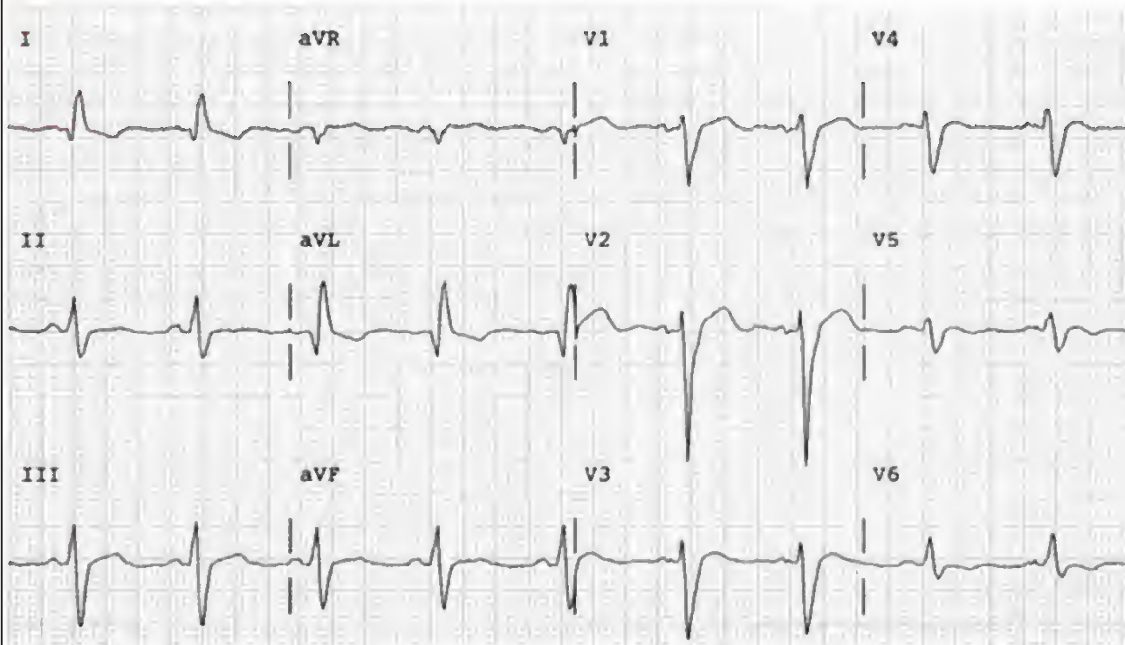
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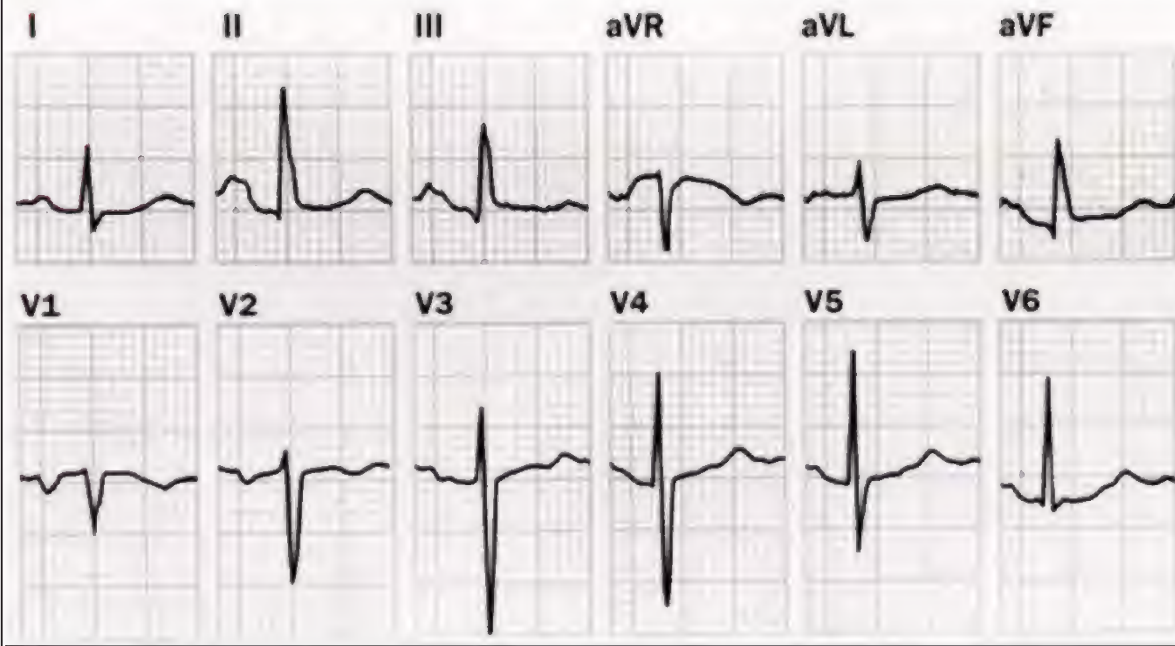


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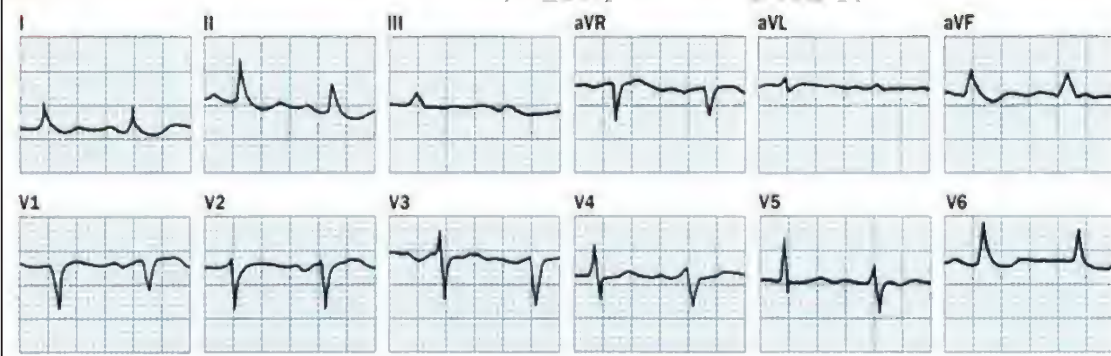




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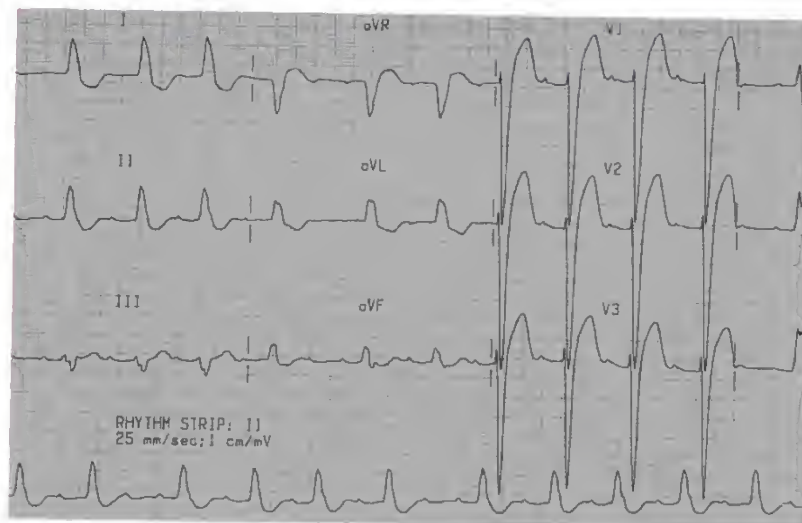




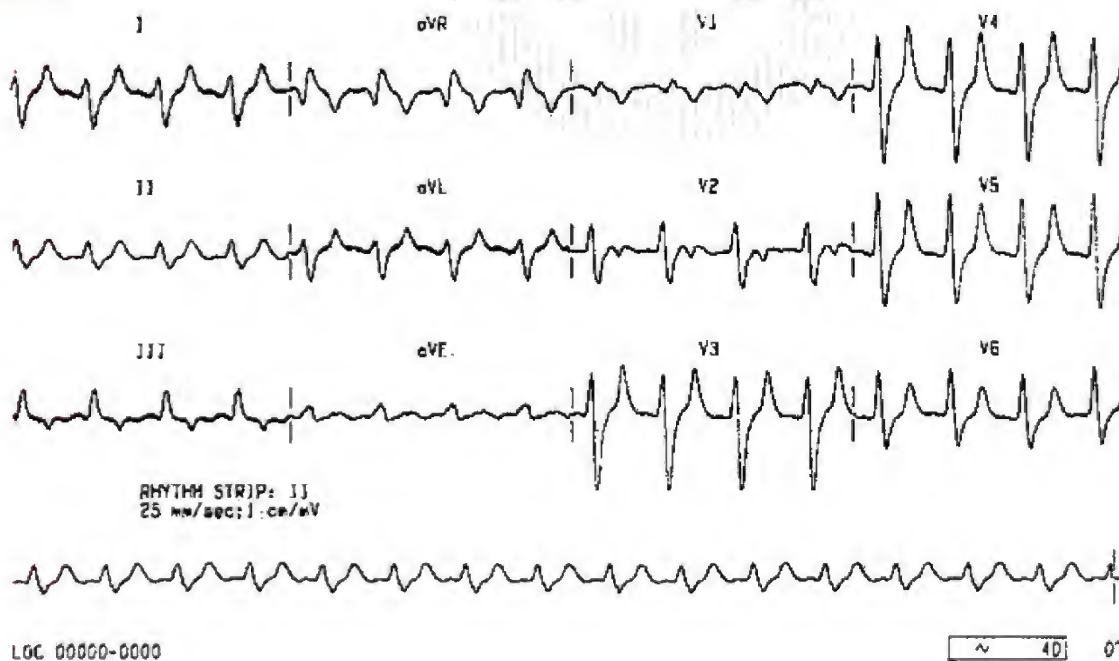
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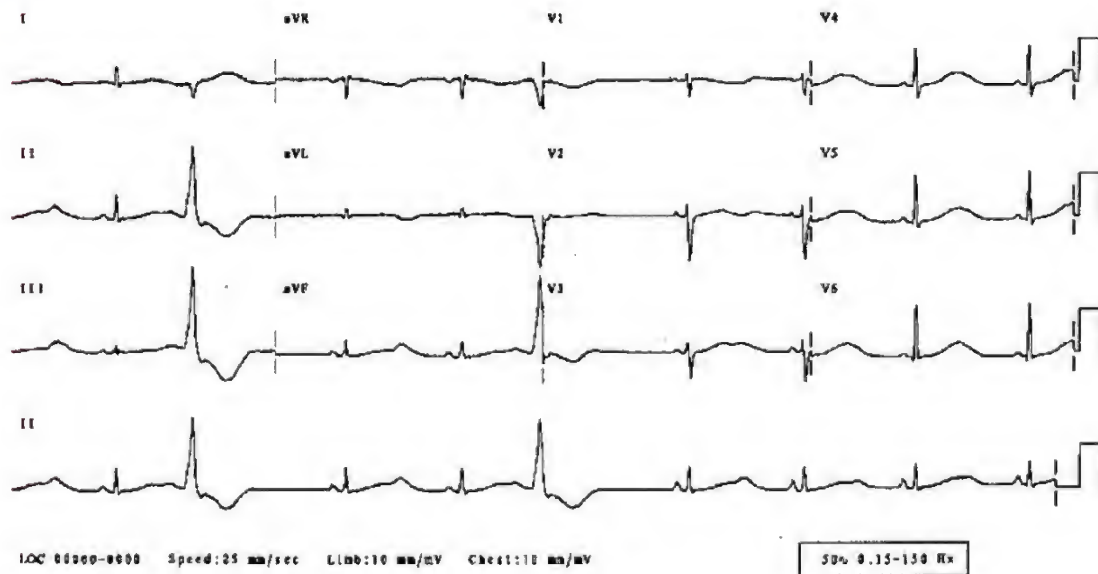
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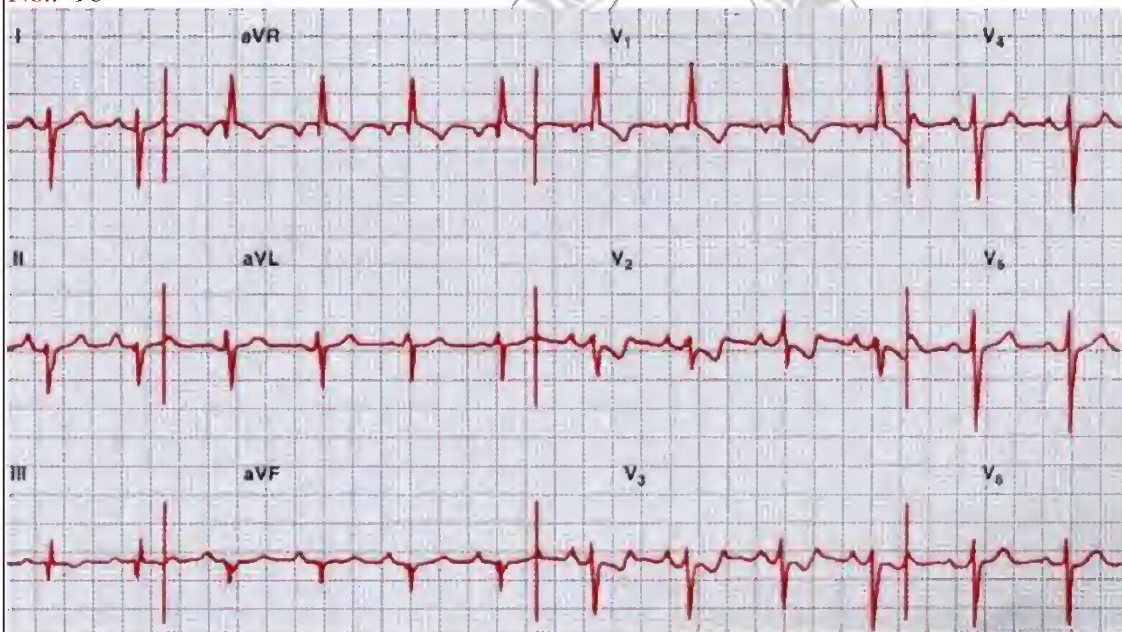
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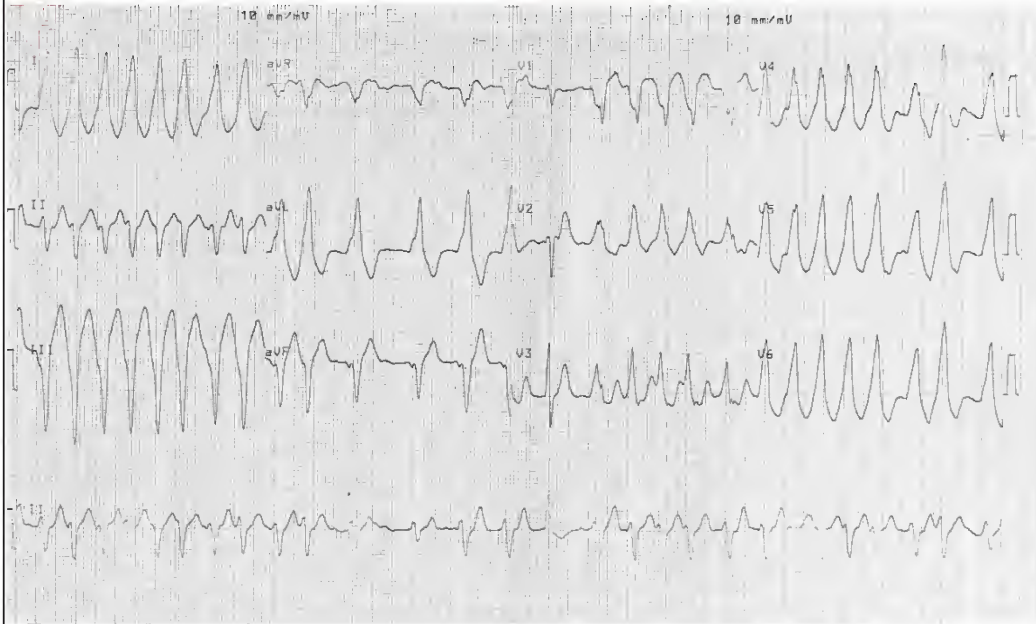
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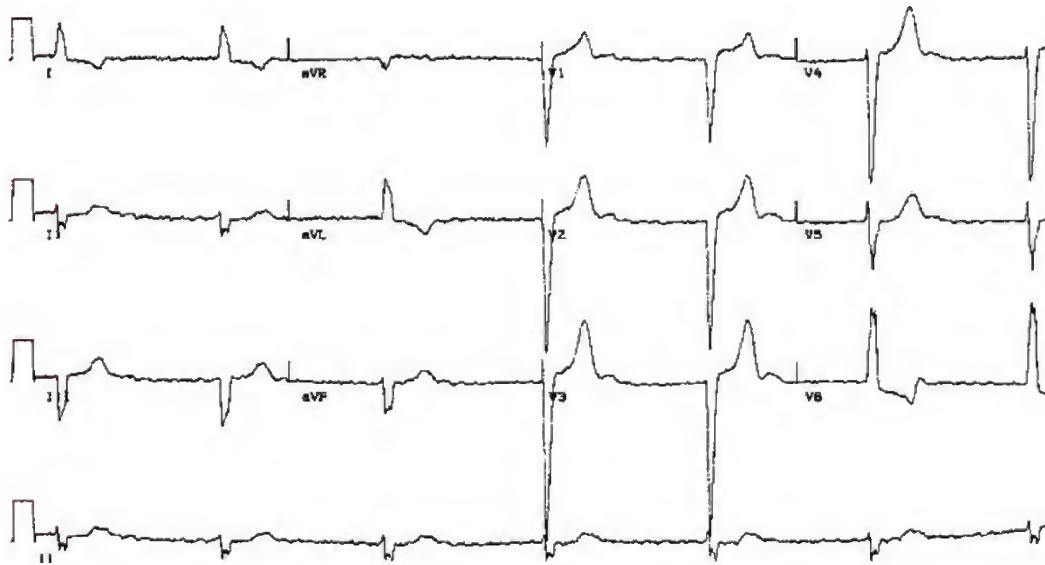


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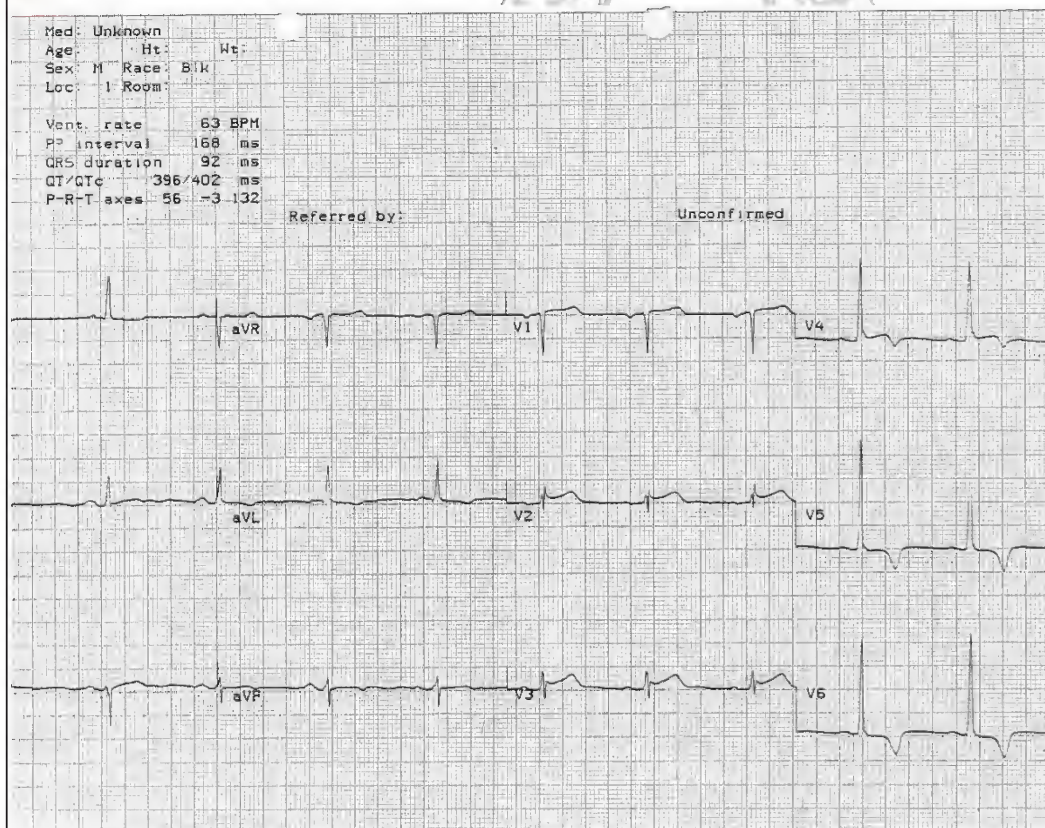




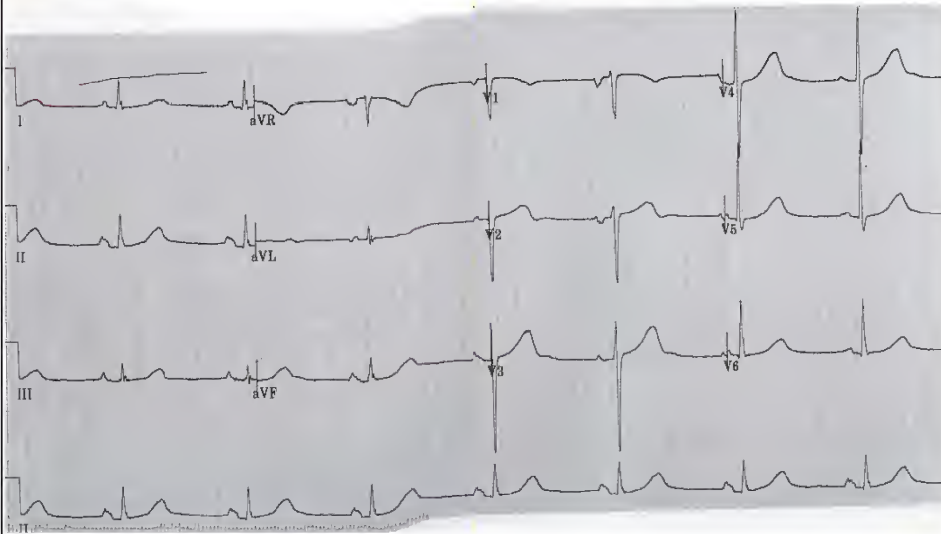
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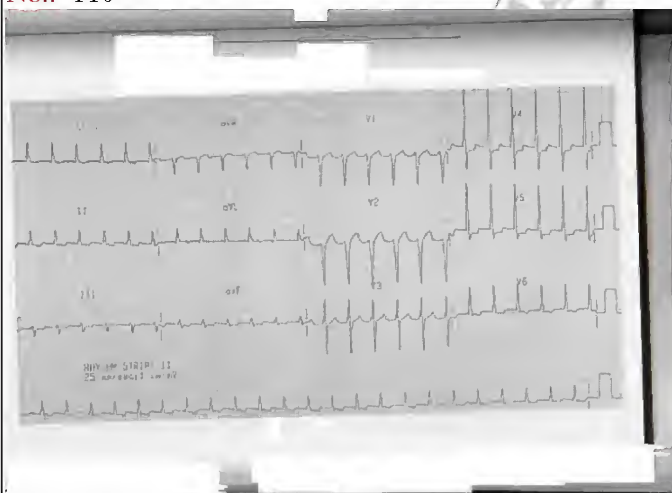
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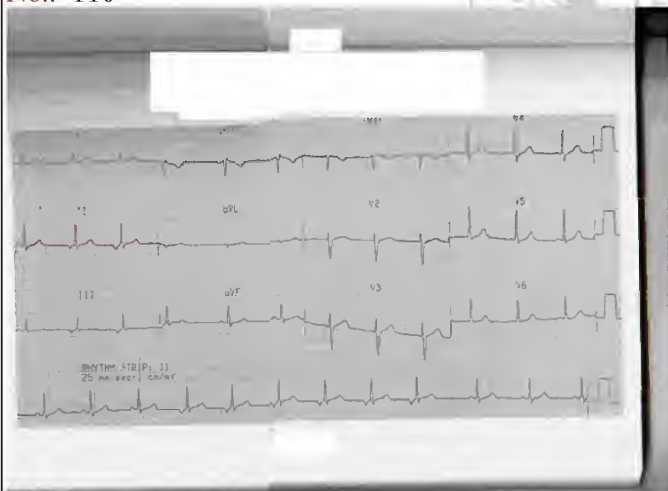
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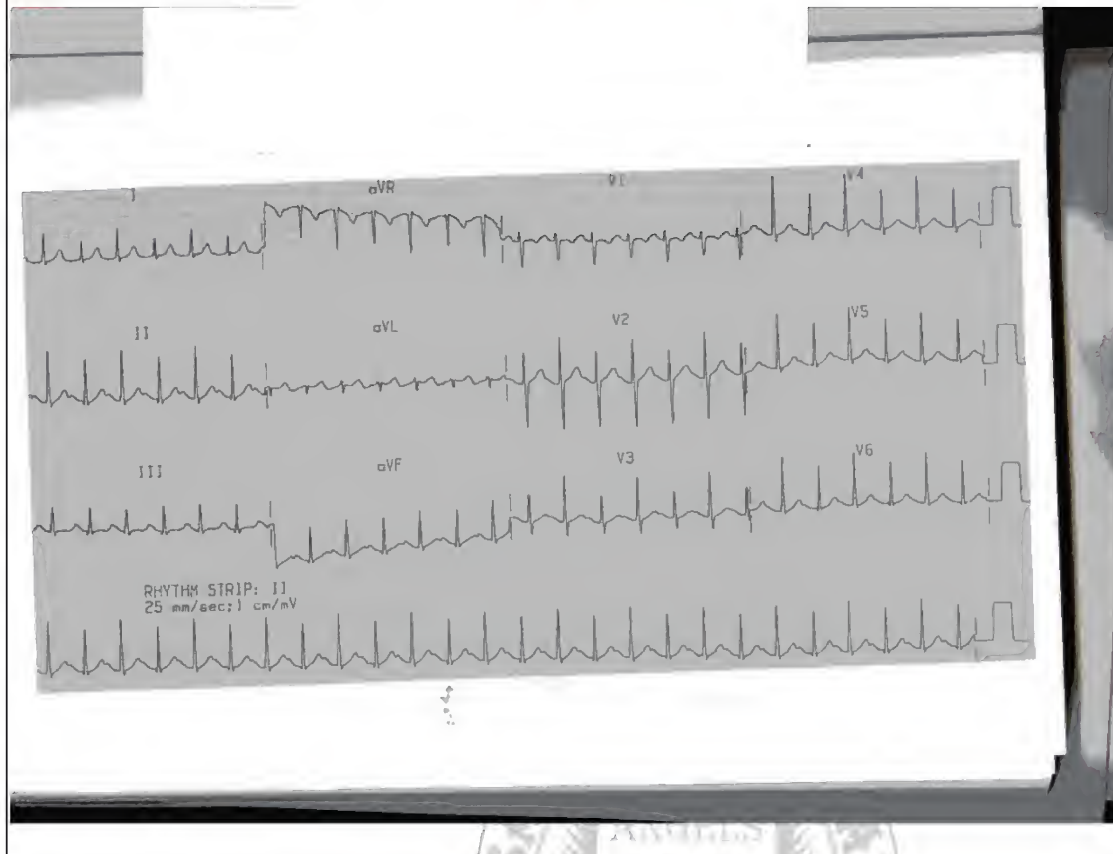


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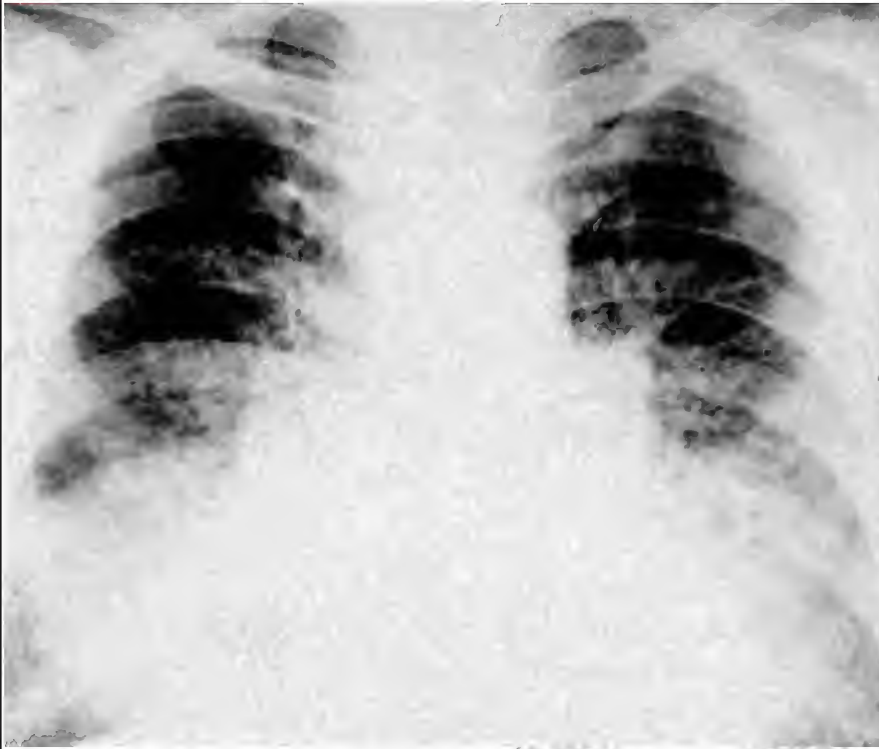




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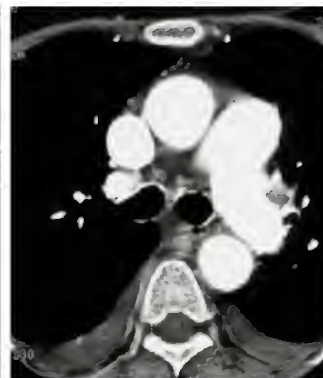
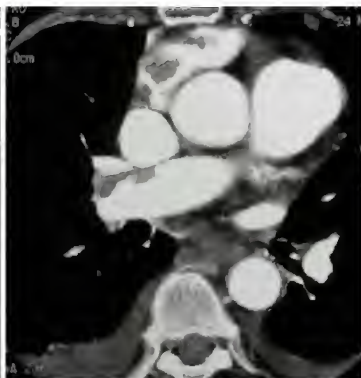
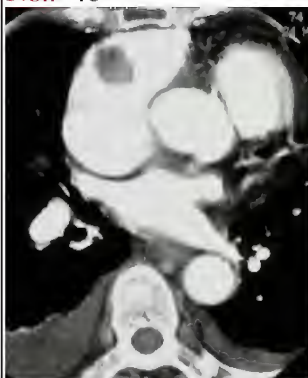
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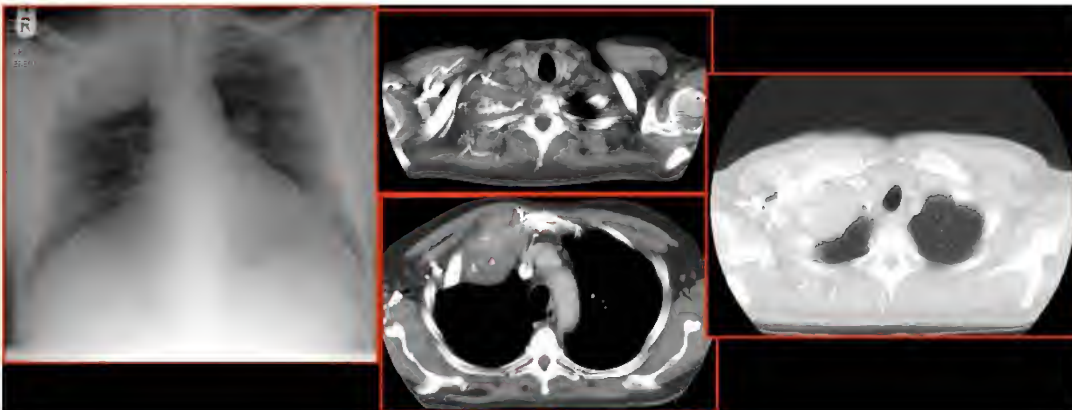
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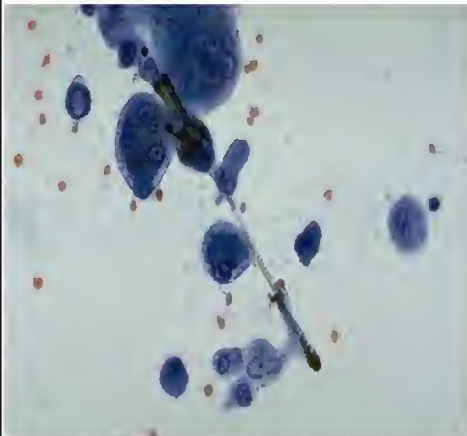
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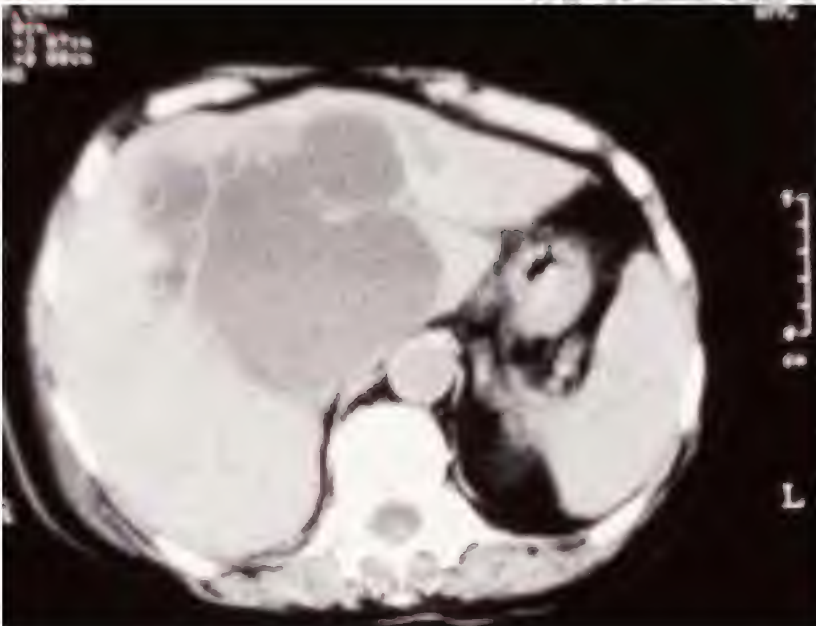
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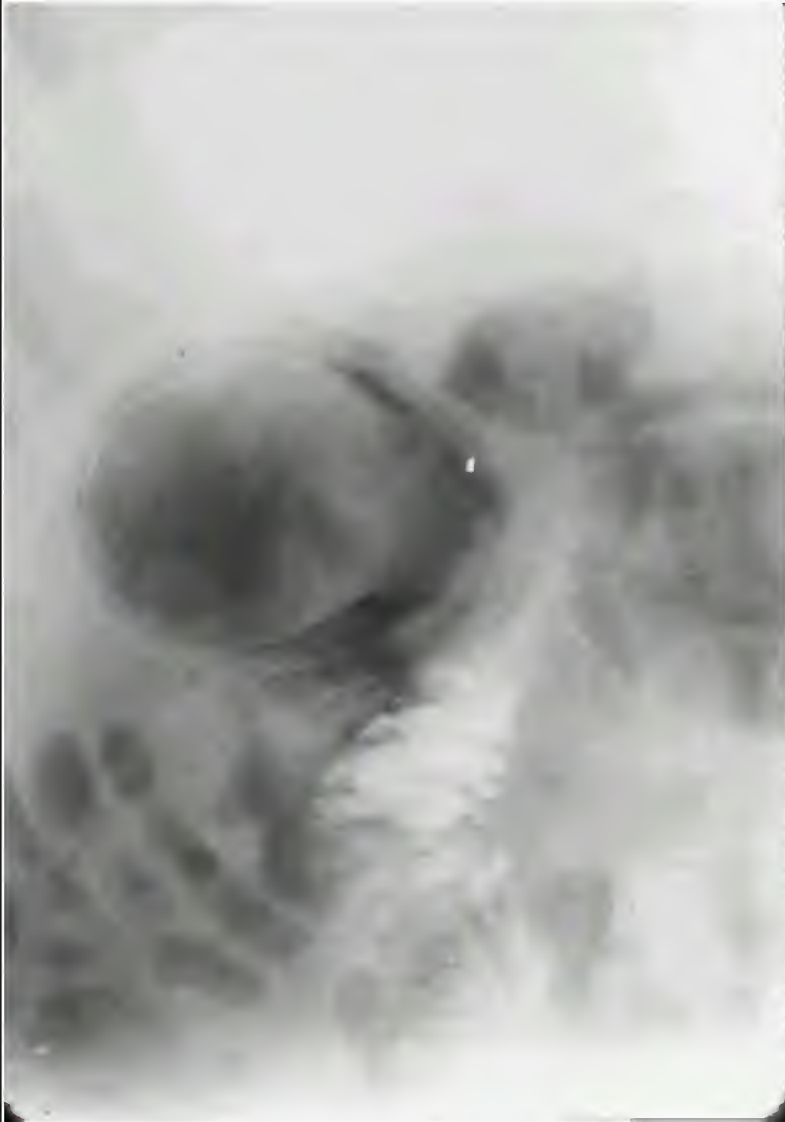


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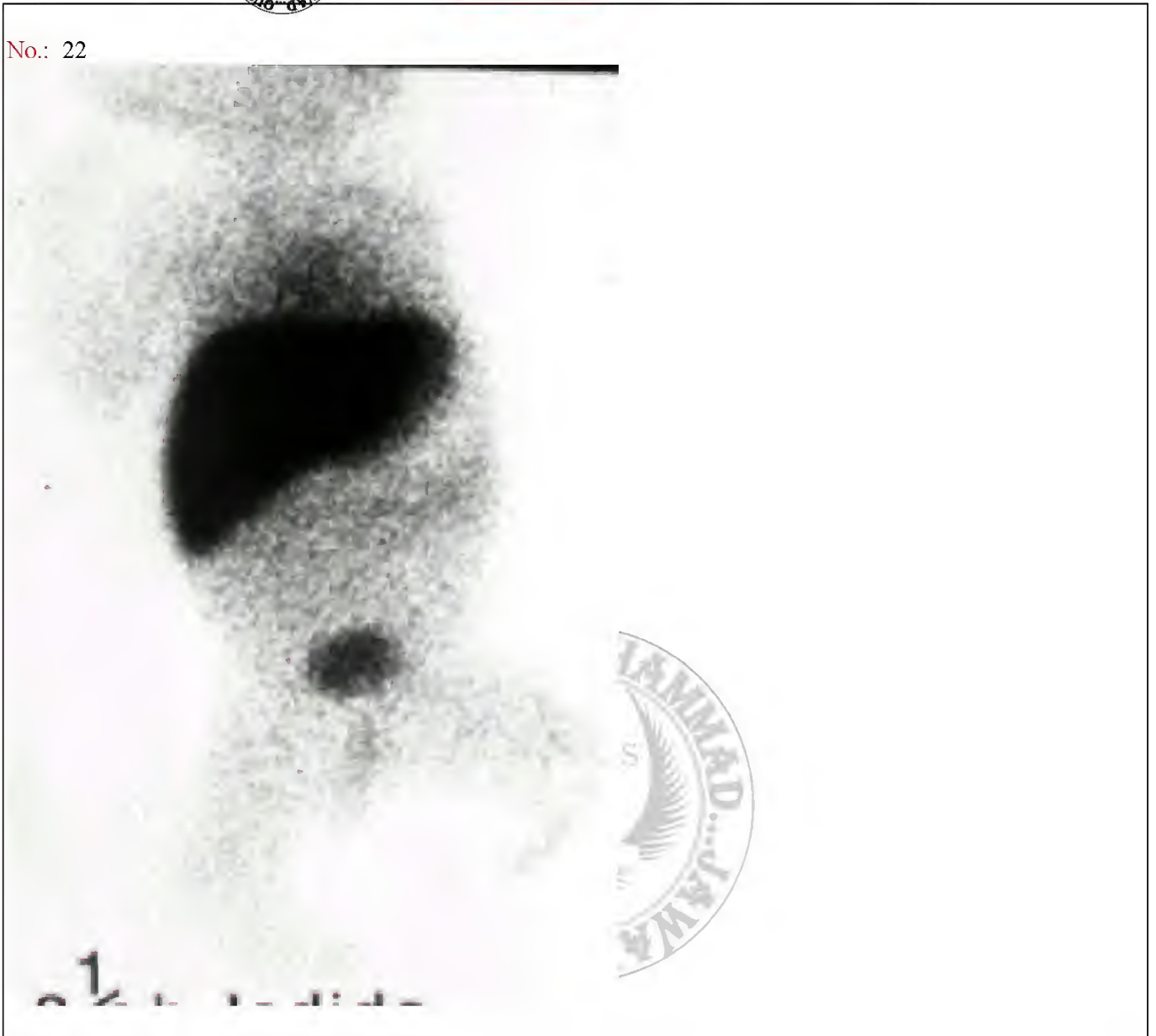




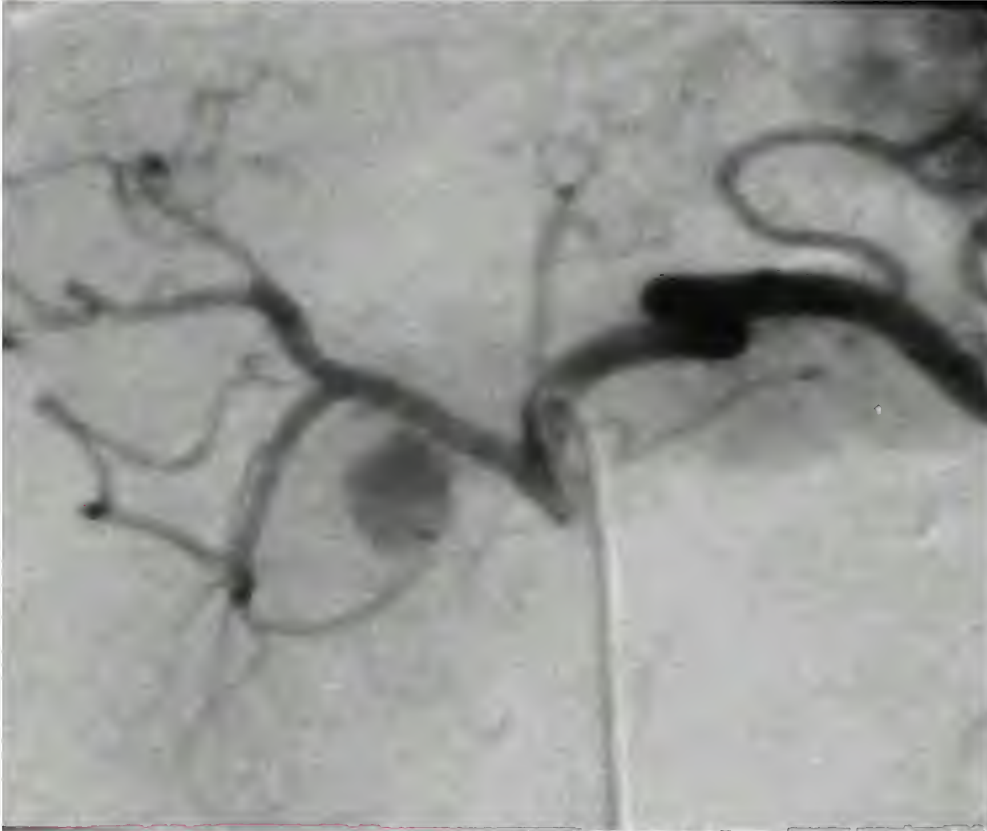
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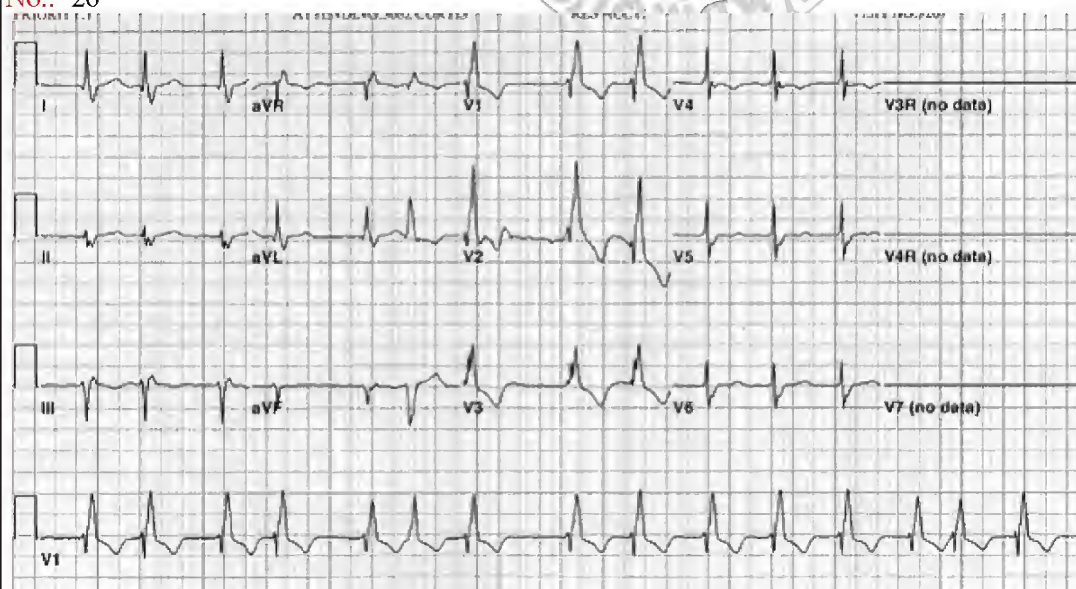
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**Barium Swallow**

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**ECG**



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Figure 1

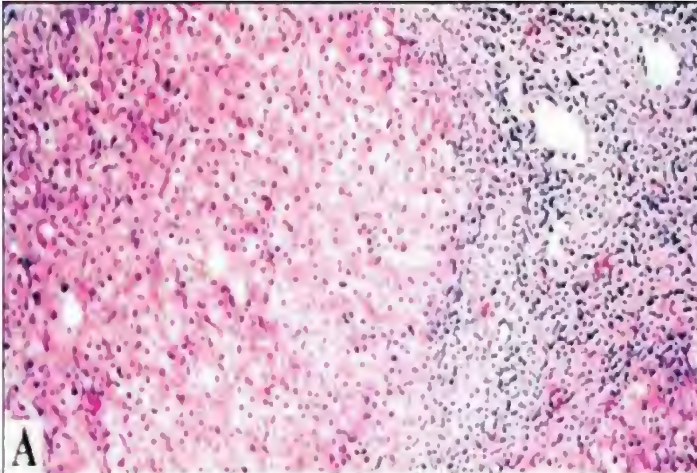
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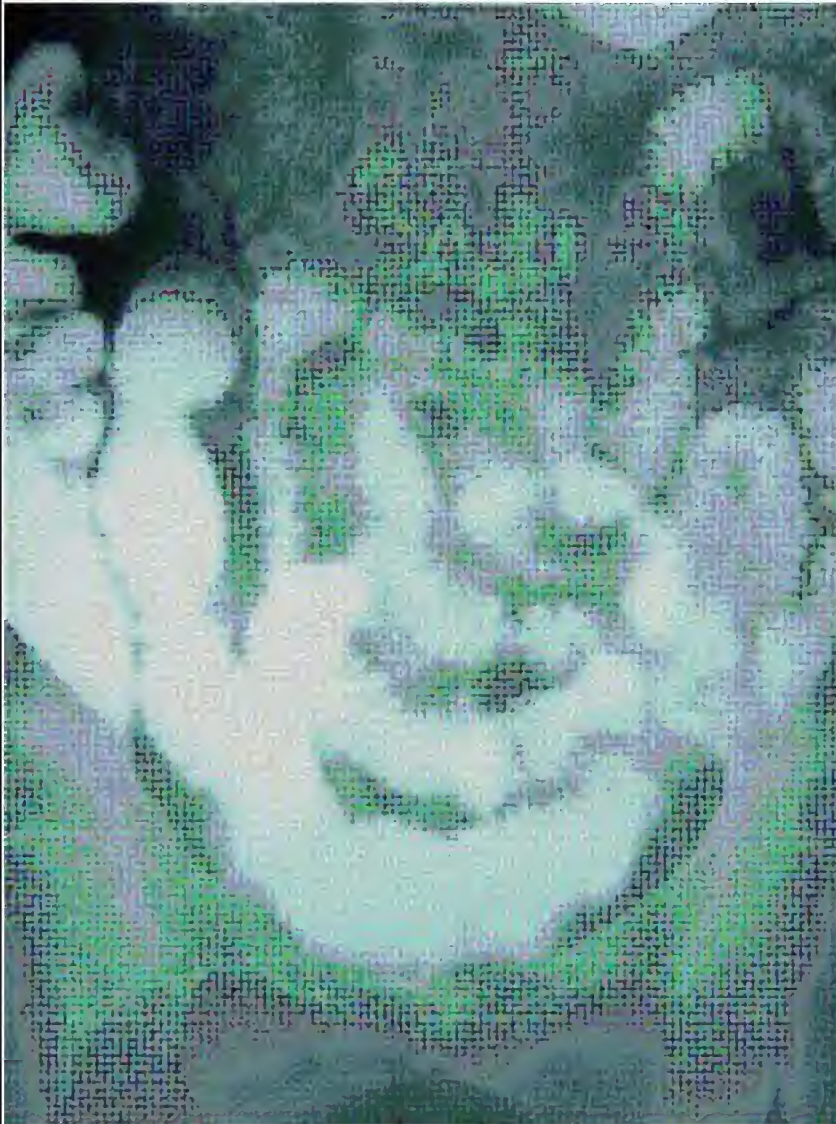
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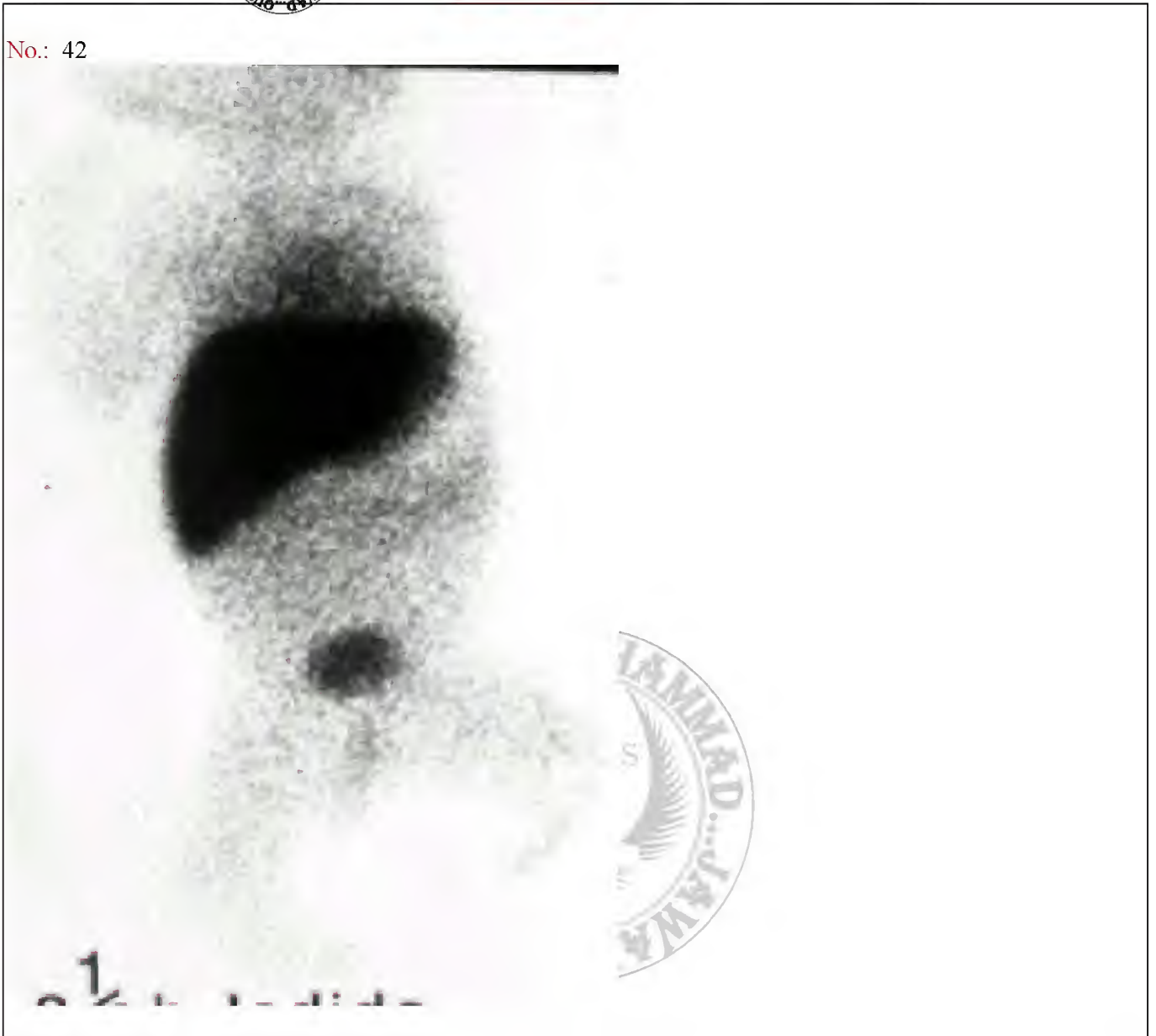




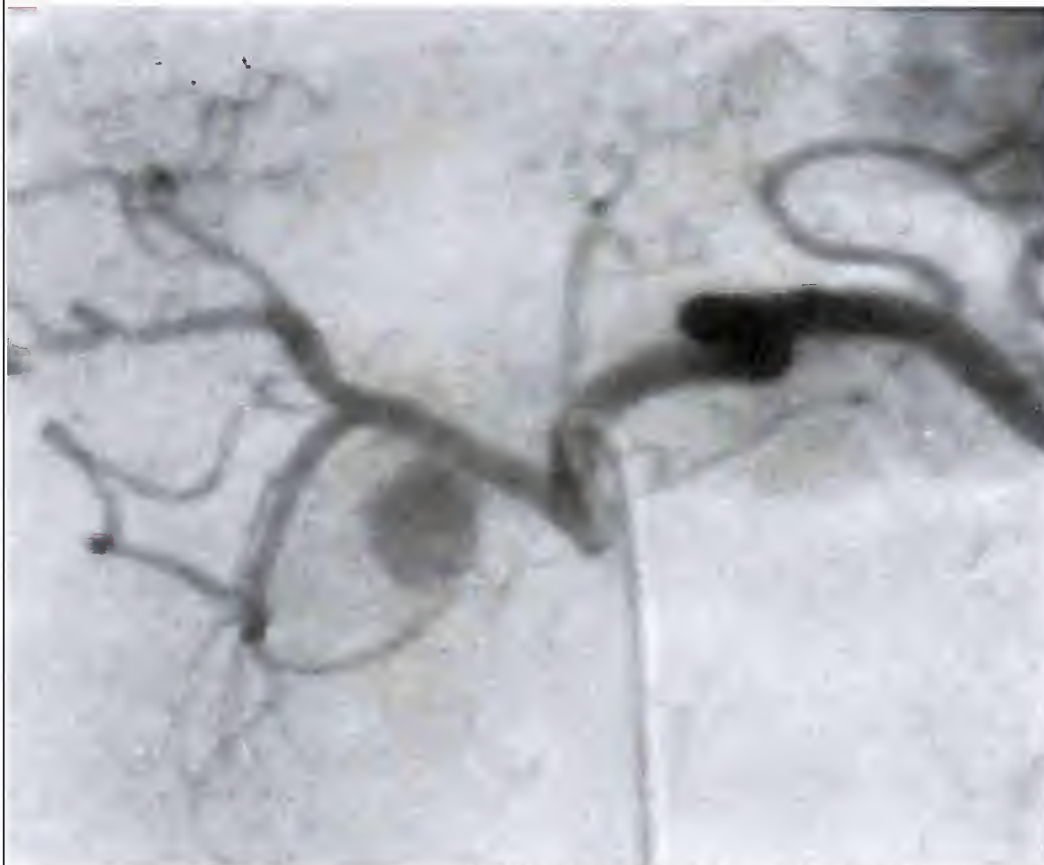
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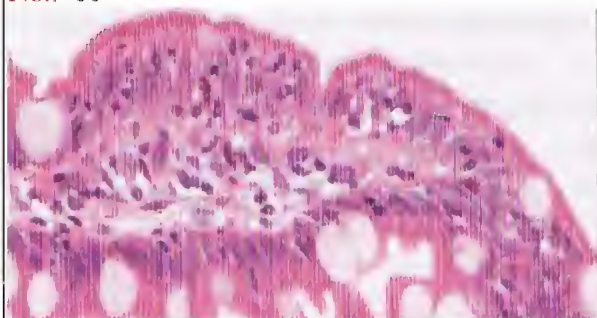
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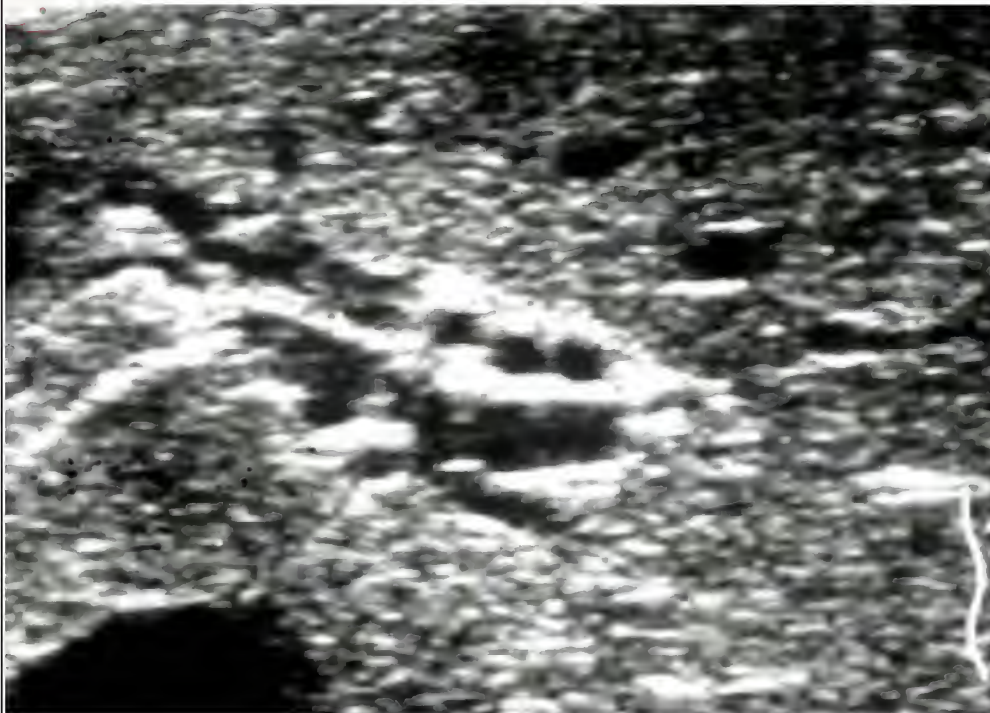
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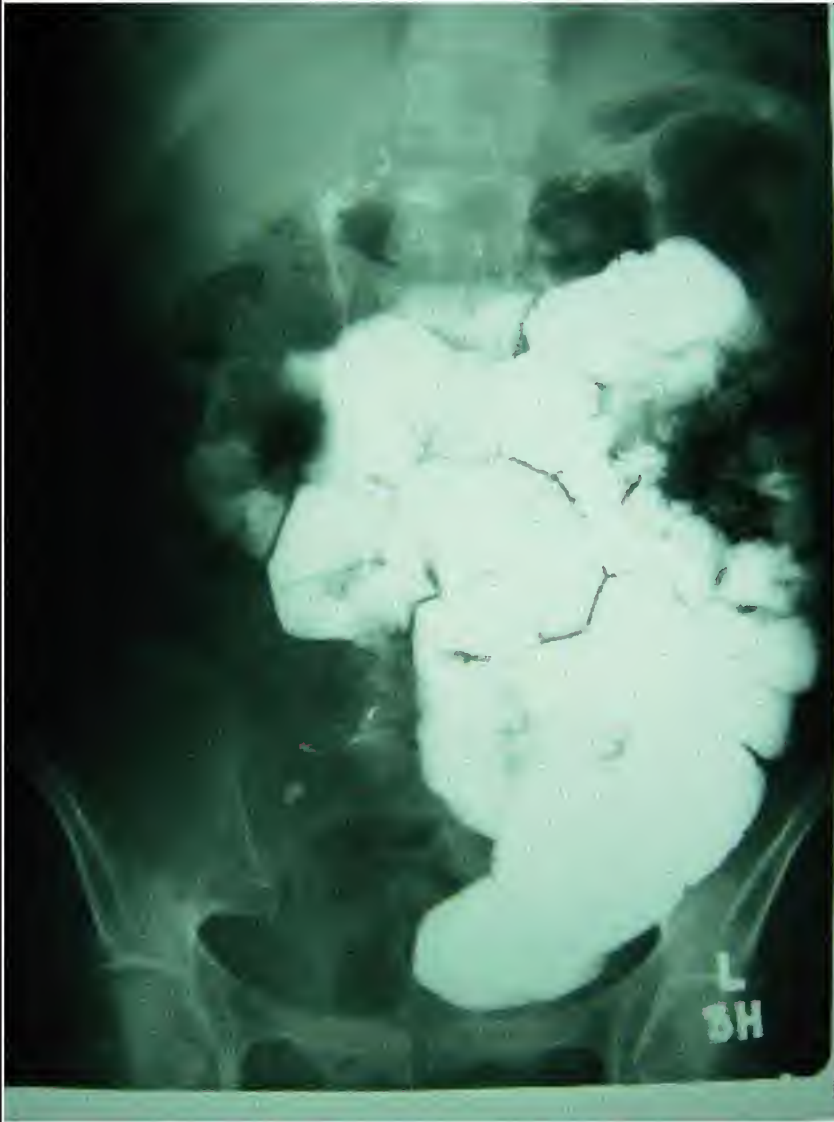
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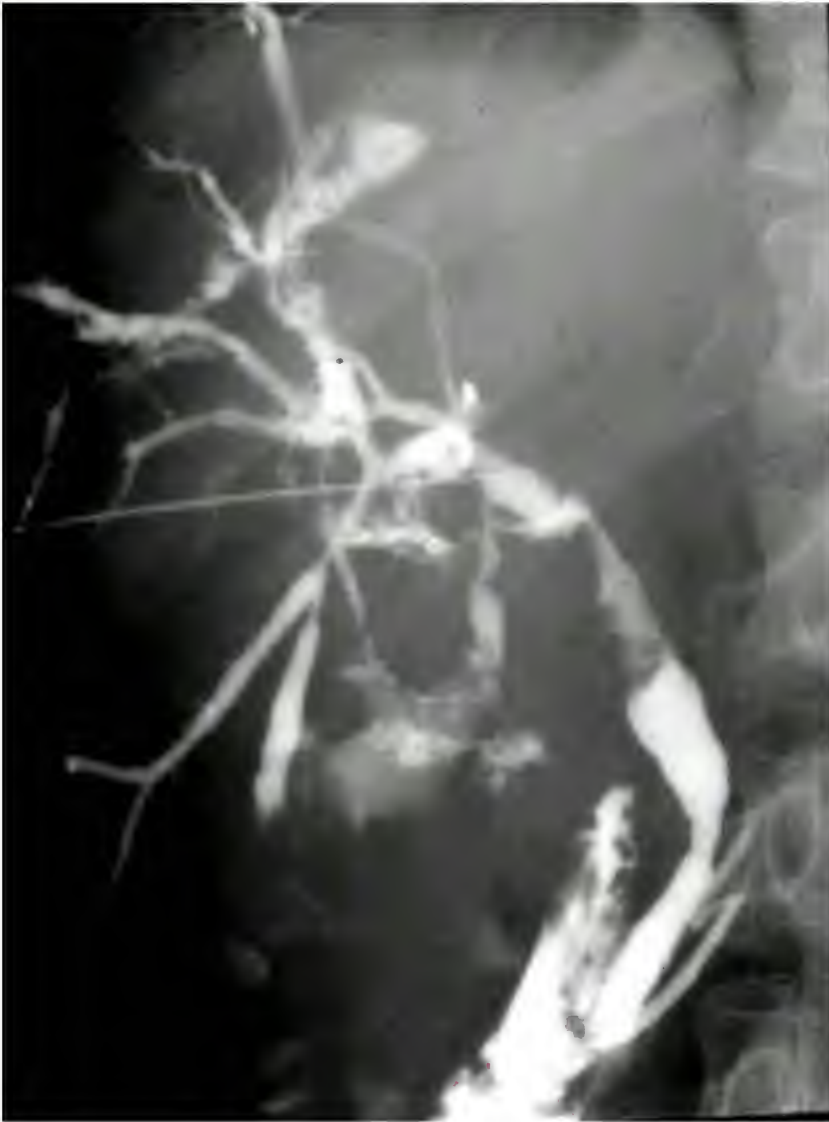
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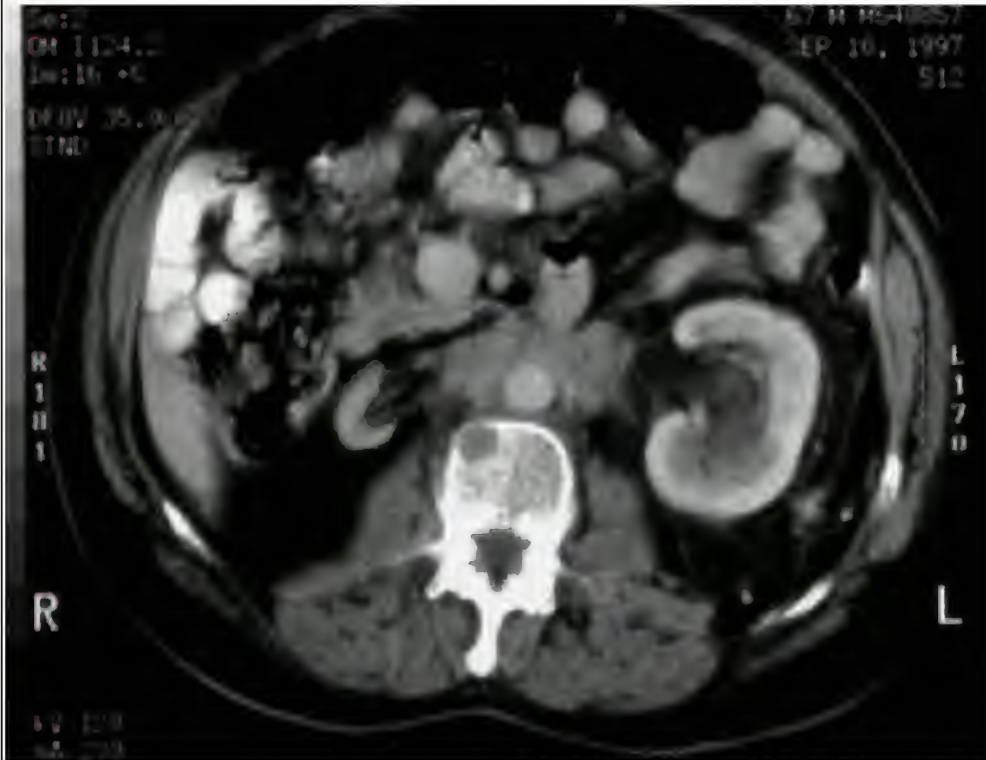




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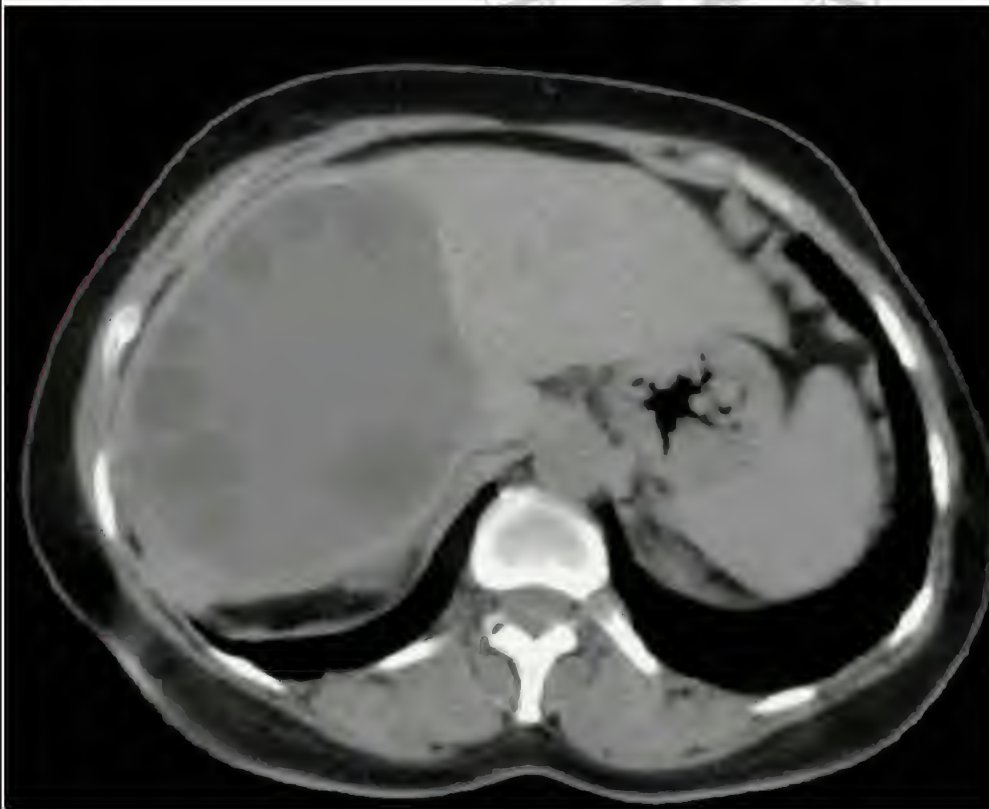
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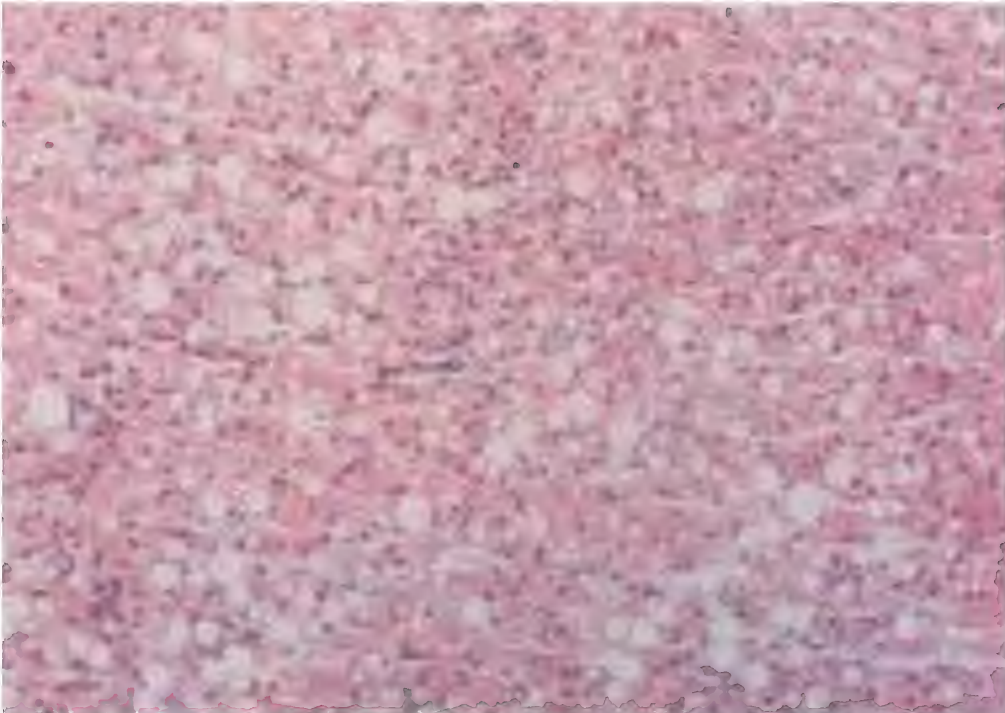


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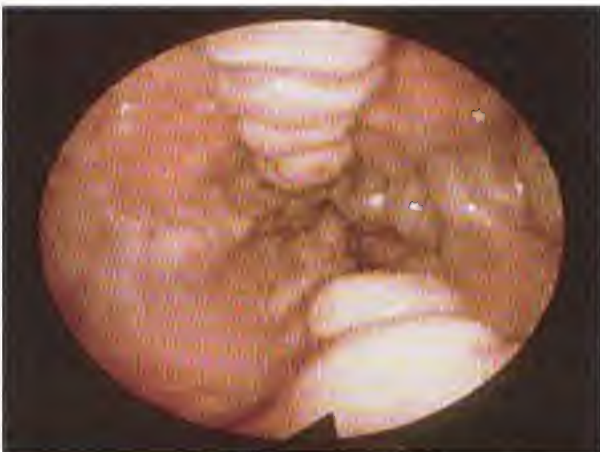
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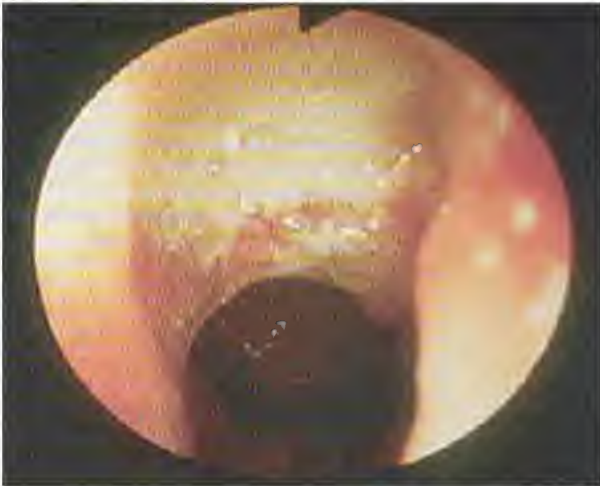
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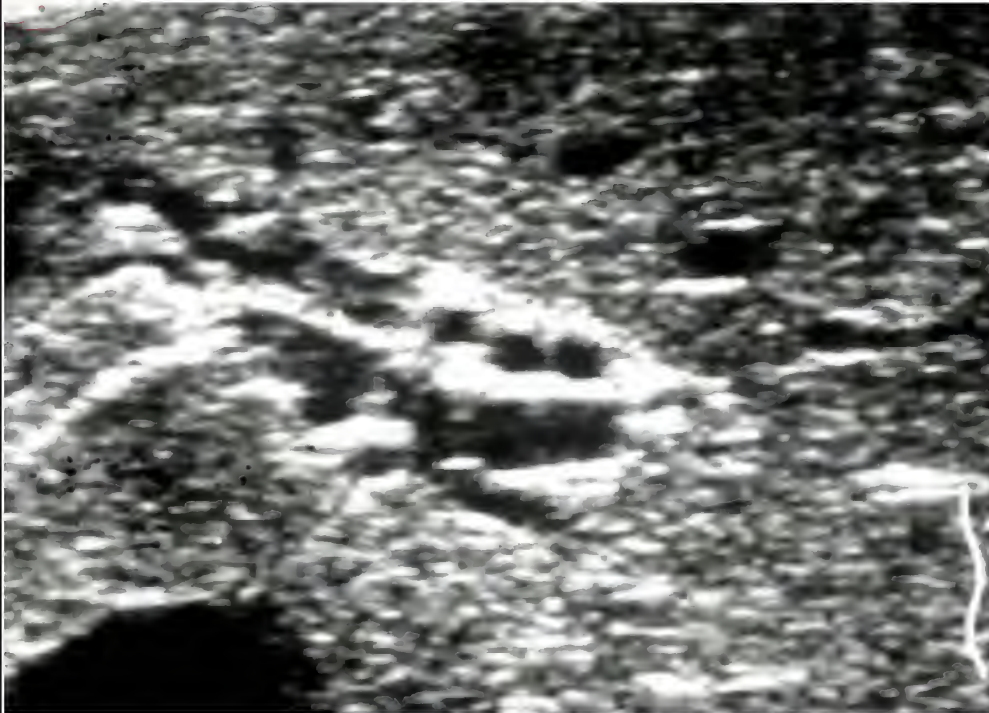


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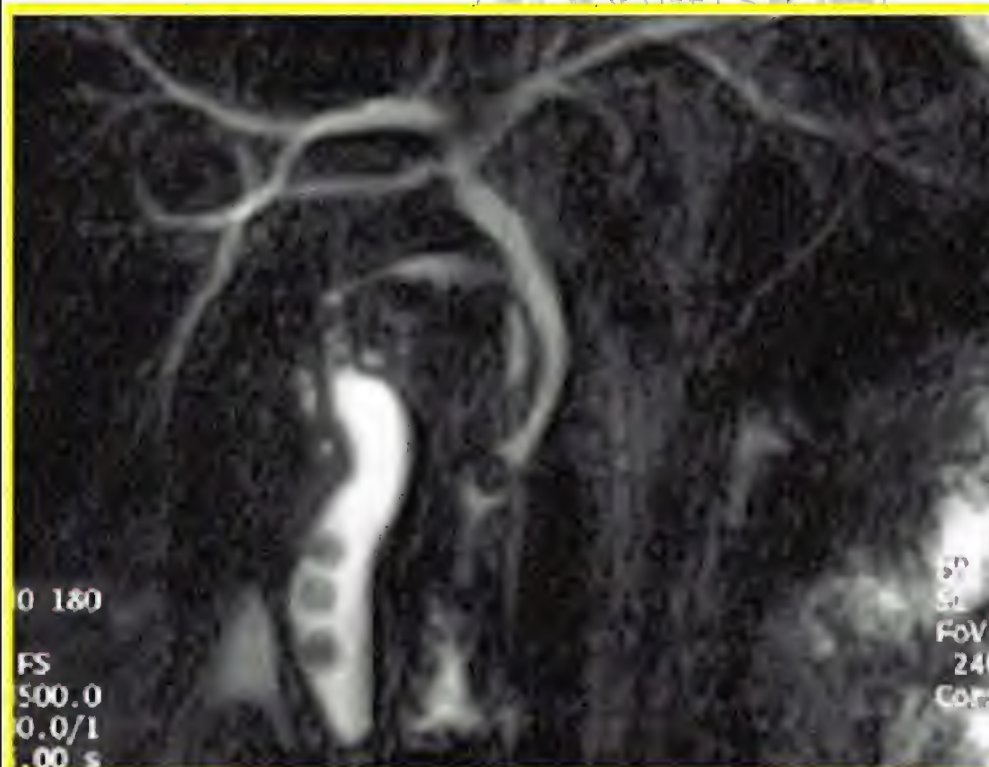




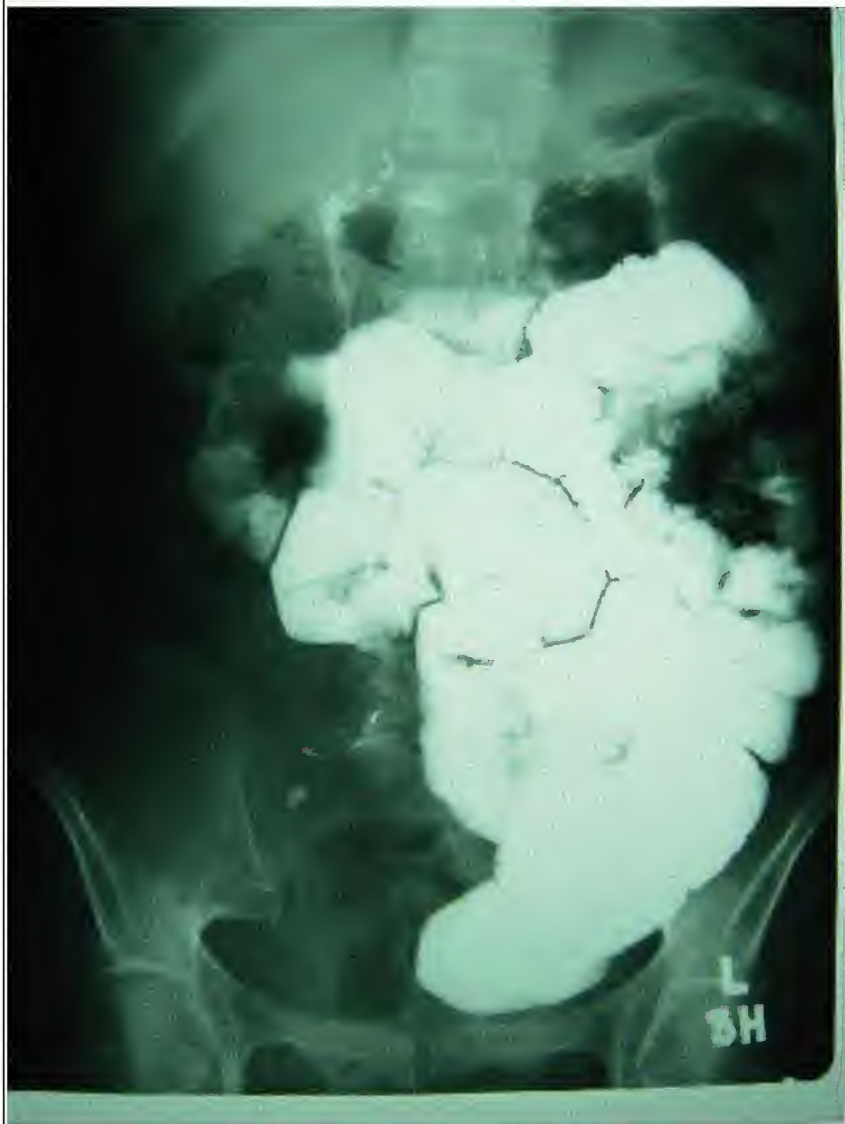
No.: 87



No.: 88



No.: 89



No.: 90



No.: 91





No.: 92



No.: 93



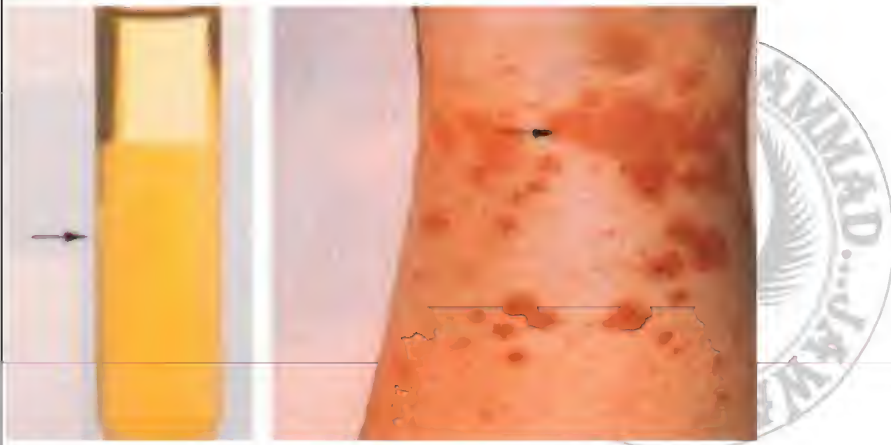
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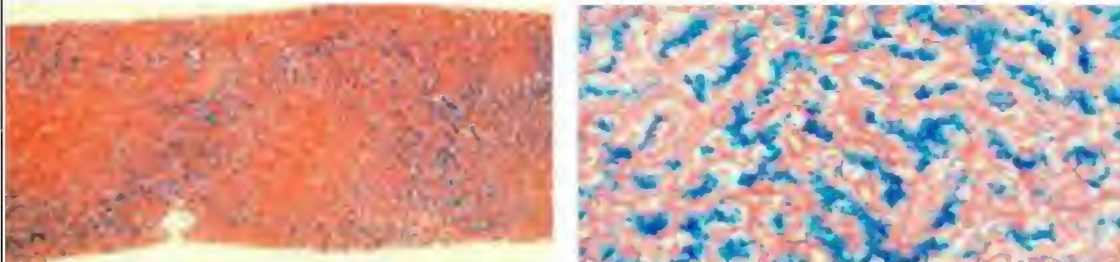
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No.: 97



No.: 98



No.: 99





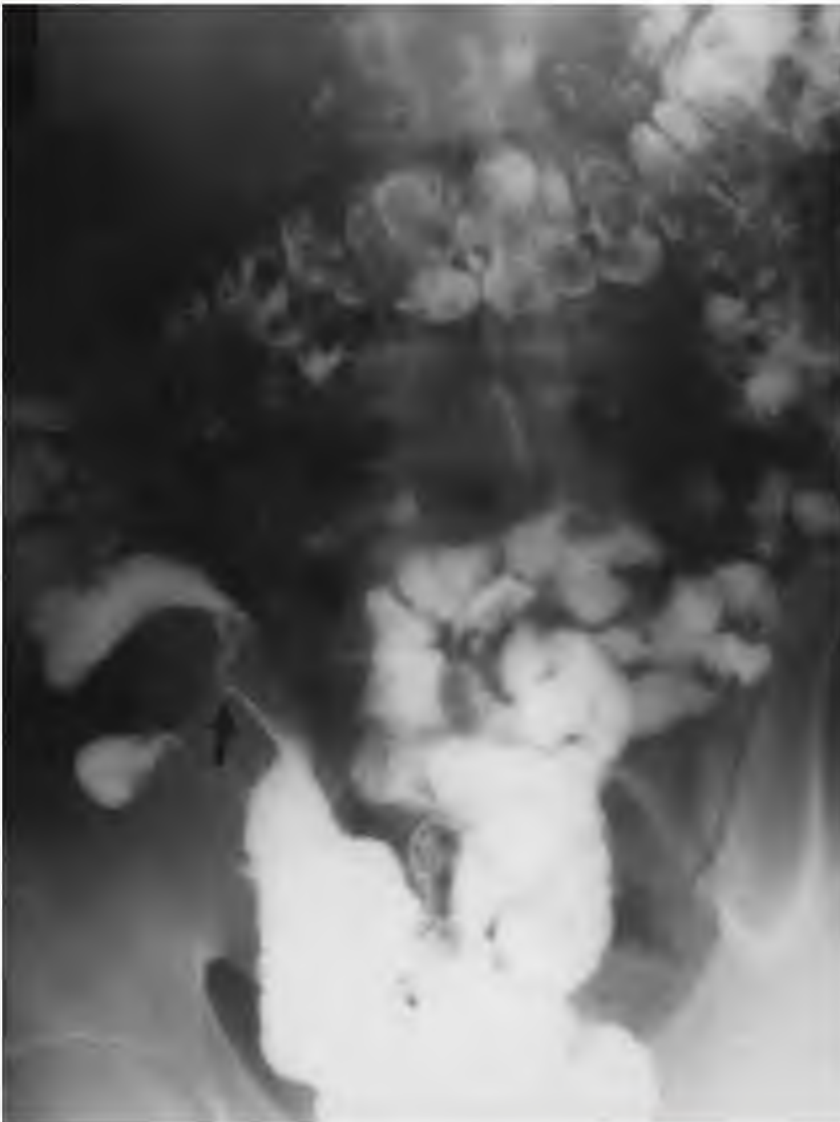
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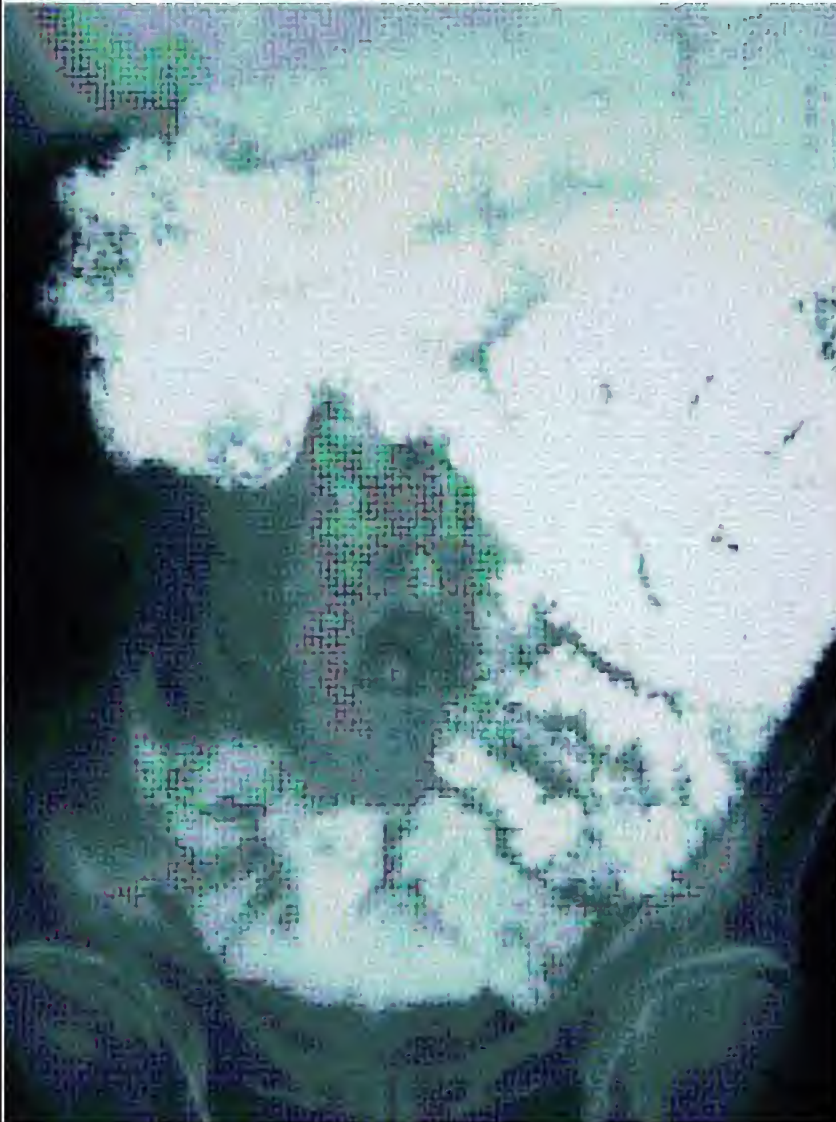
No.: 101



No.: 104



No.: 105

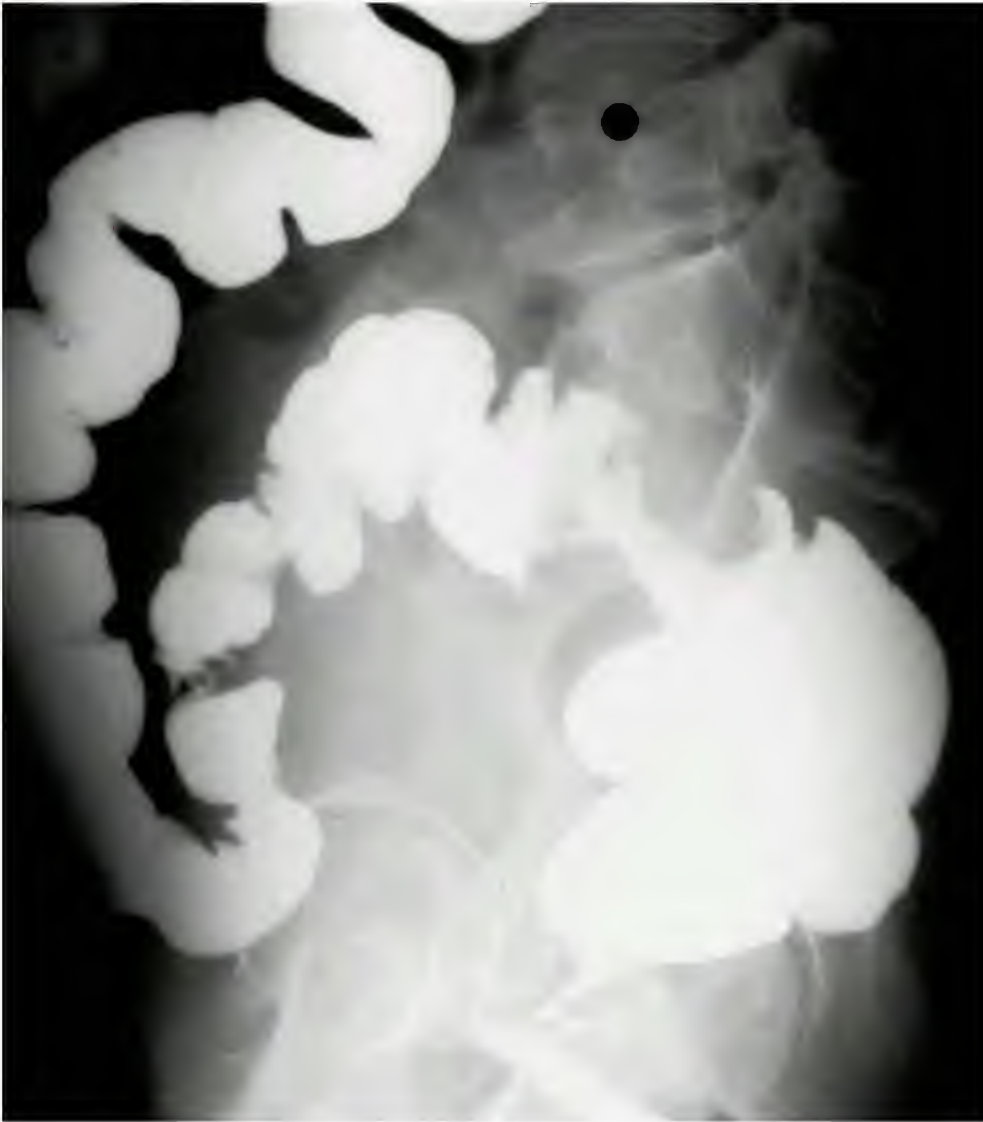


No.: 106





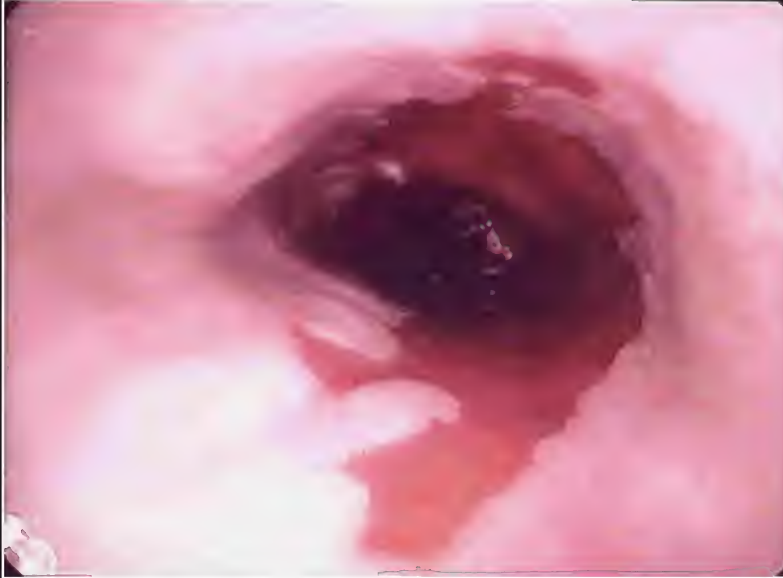
No.: 110



No.: 111



No.: 113



No.: 117





No.: 118



No.: 119



No.: 120

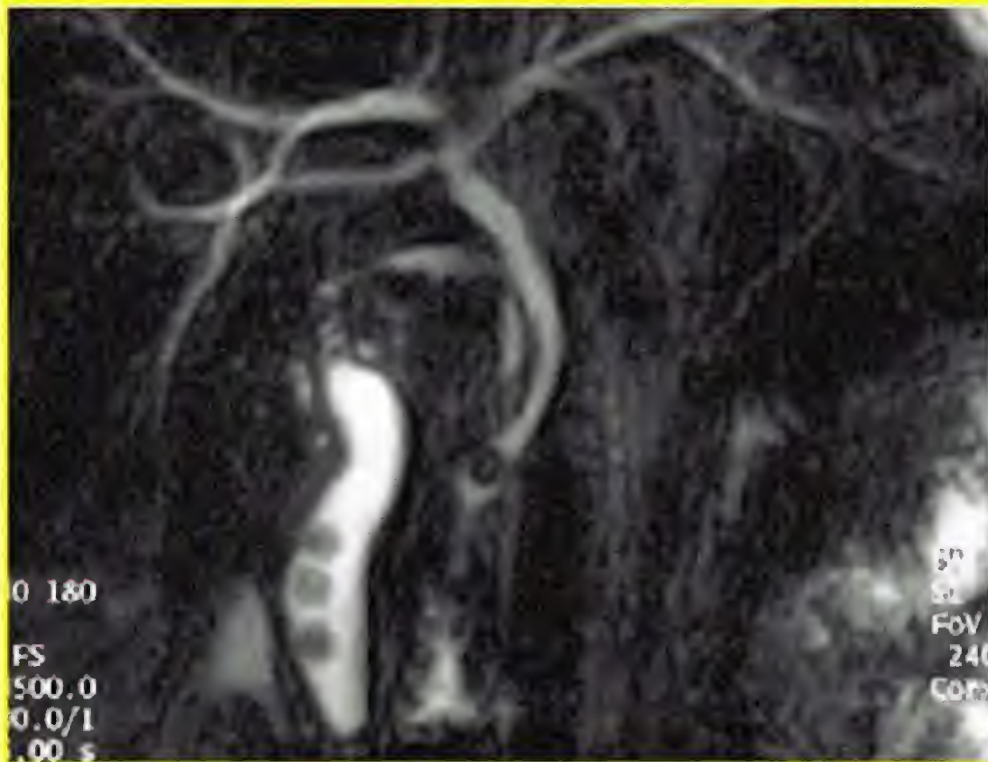


No.: 121





No.: 122



No.: 141



No.: 142



No.: 31



No.: 33



No.: 34



No.: 35





No.: 36



No.: 37



No.: 38



No.: 39



No.: 42

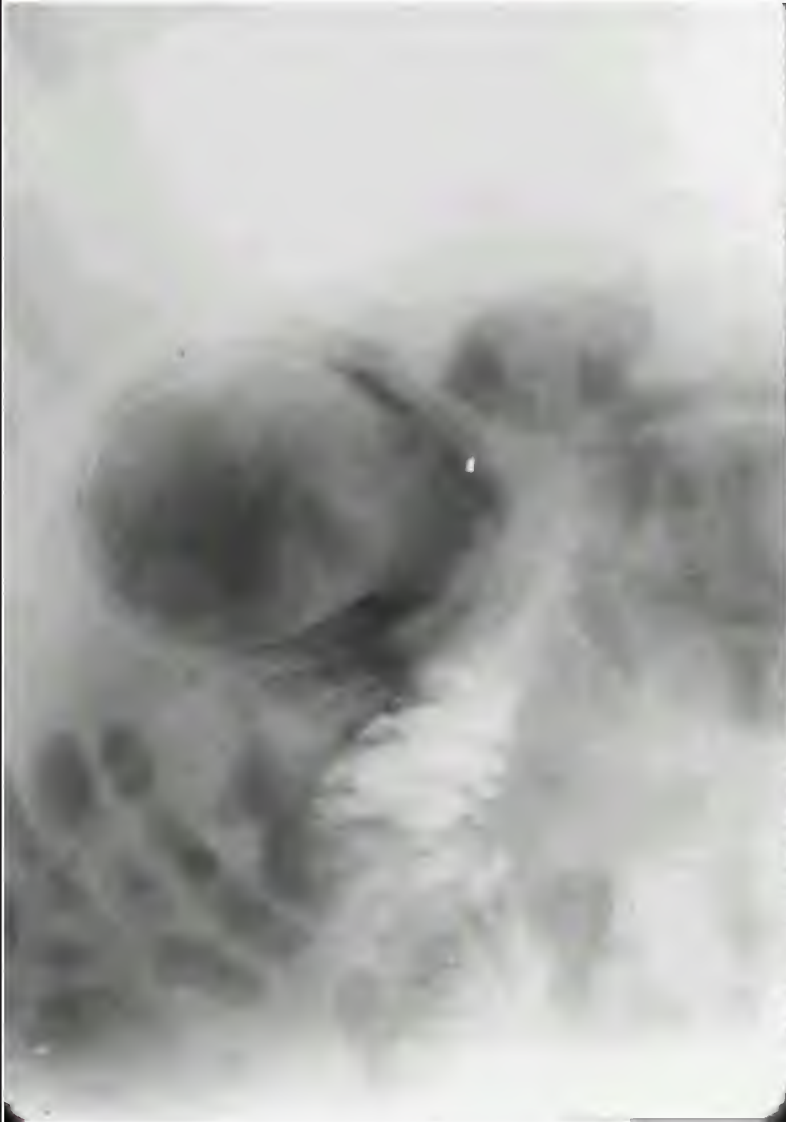




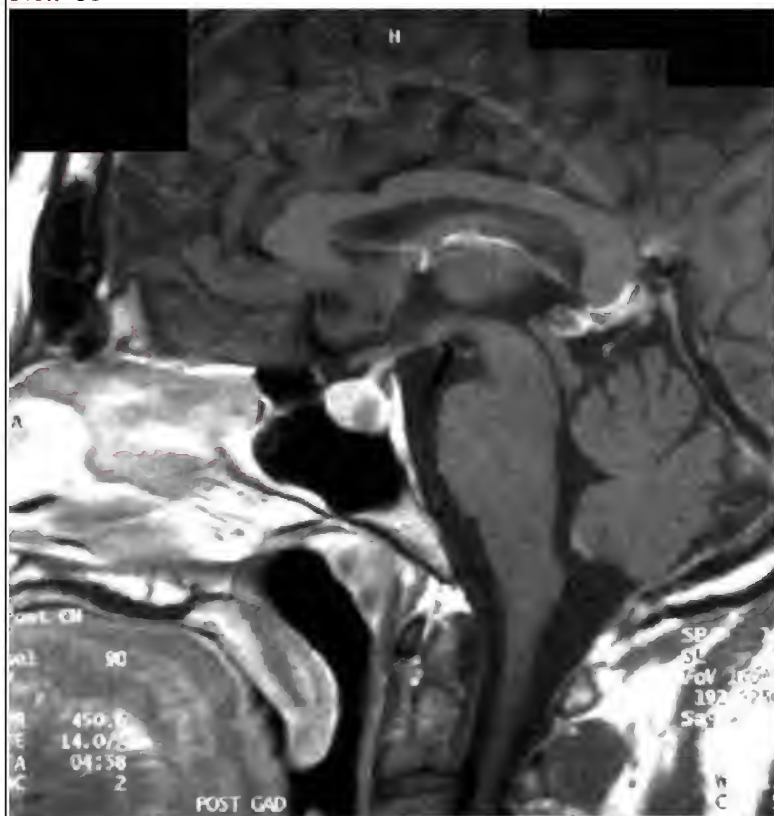
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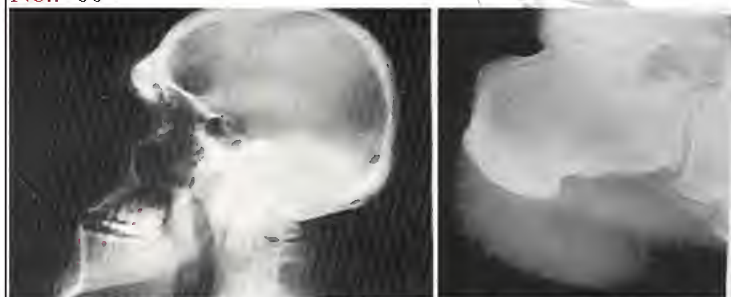
No.: 51



No.: 59



No.: 60

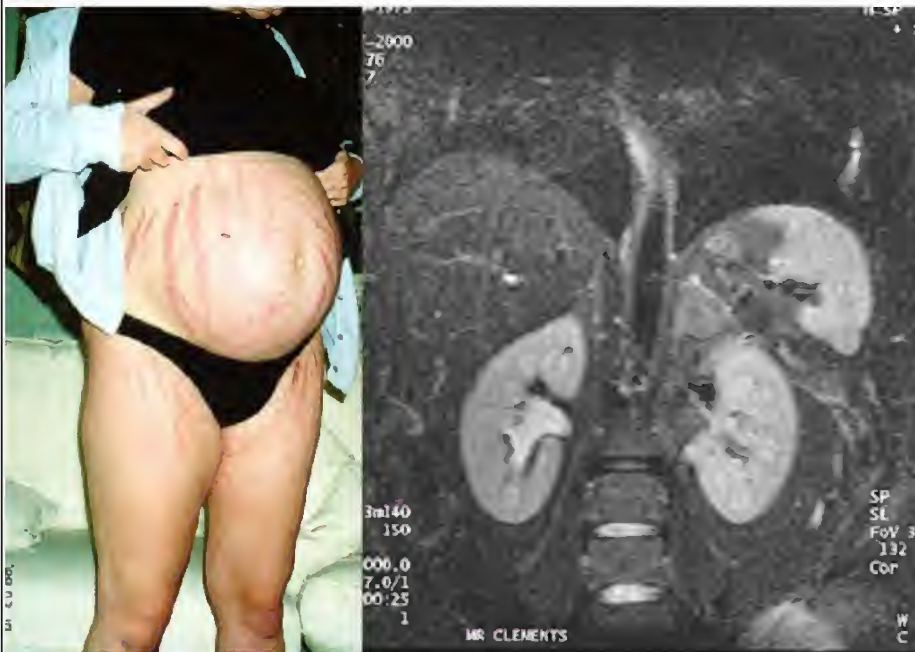


No.: 61



% Thyroid Uptake = 13.63  
Normal Uptake Range = 0.5 – 3.5%

No.: 62





No.: 68



No.: 77  
Slide 1



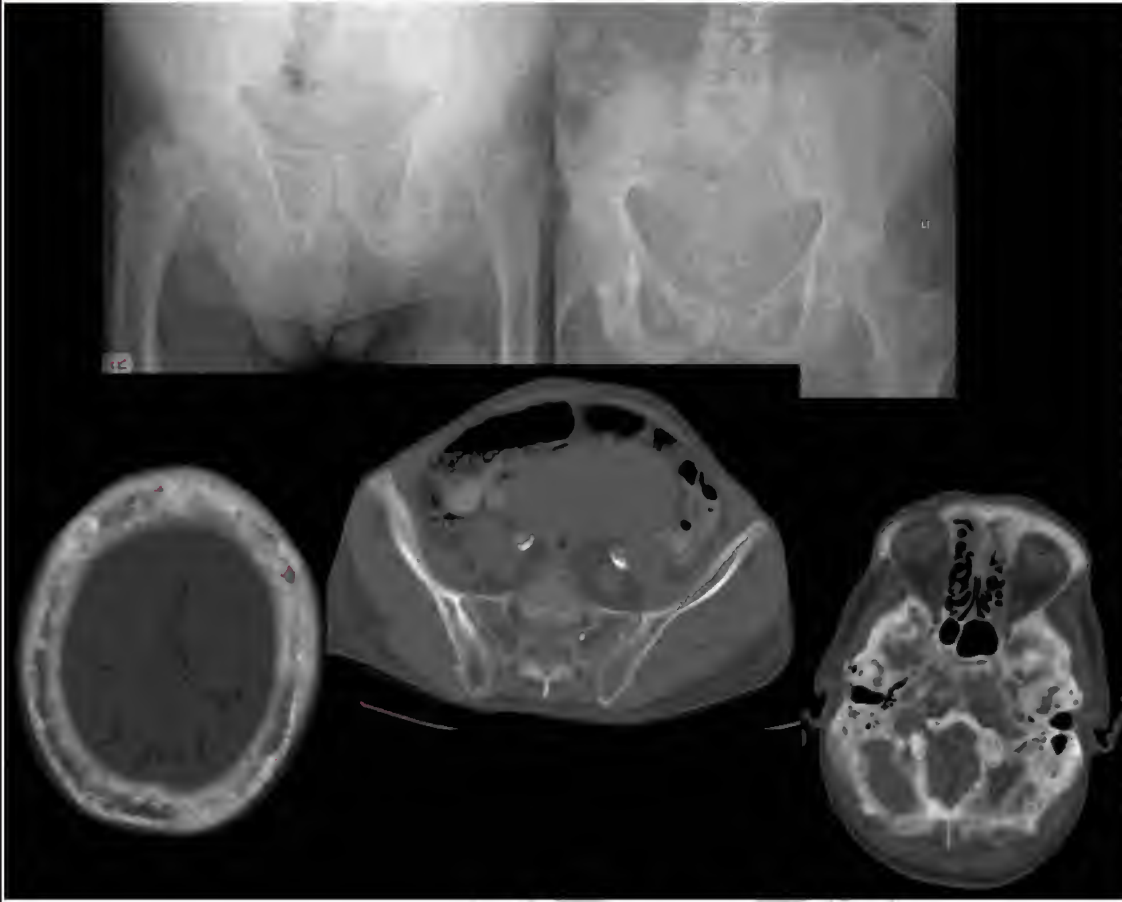
Slide 2



No.: 111

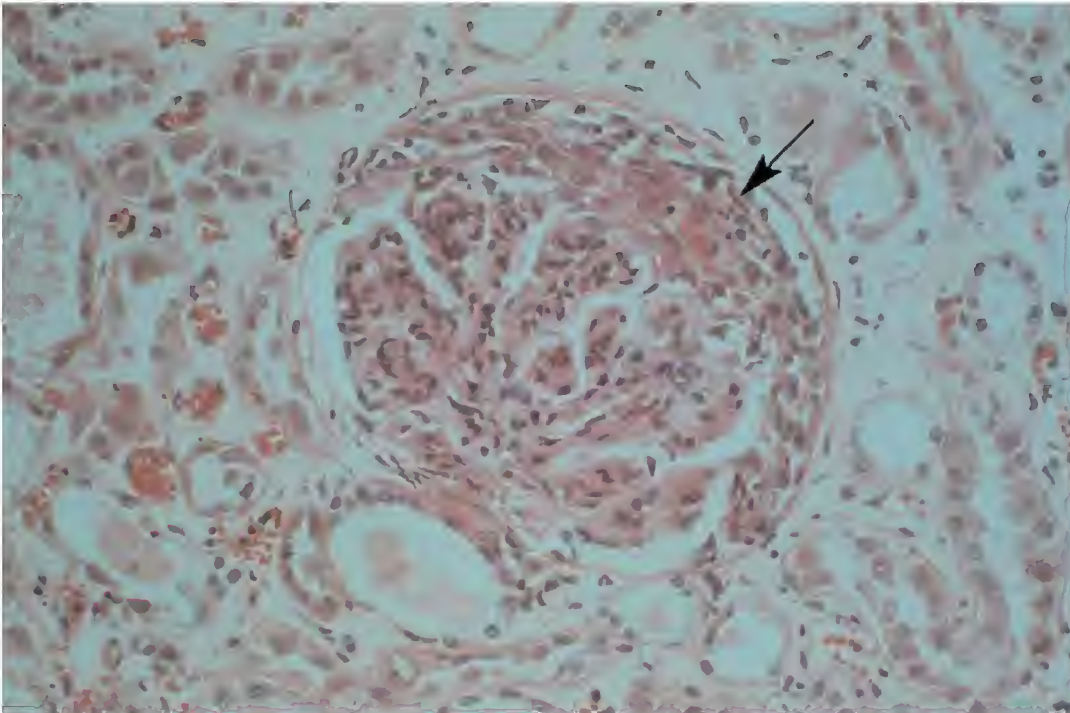


No.: 112





No.: 10



No.: 11



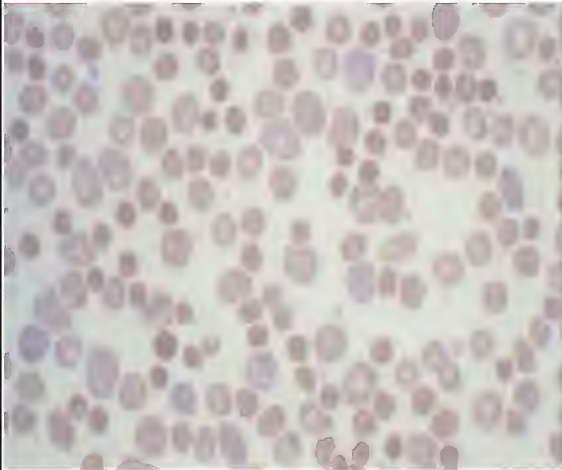
No.: 77



No.: 84



No.: 9



No.: 10



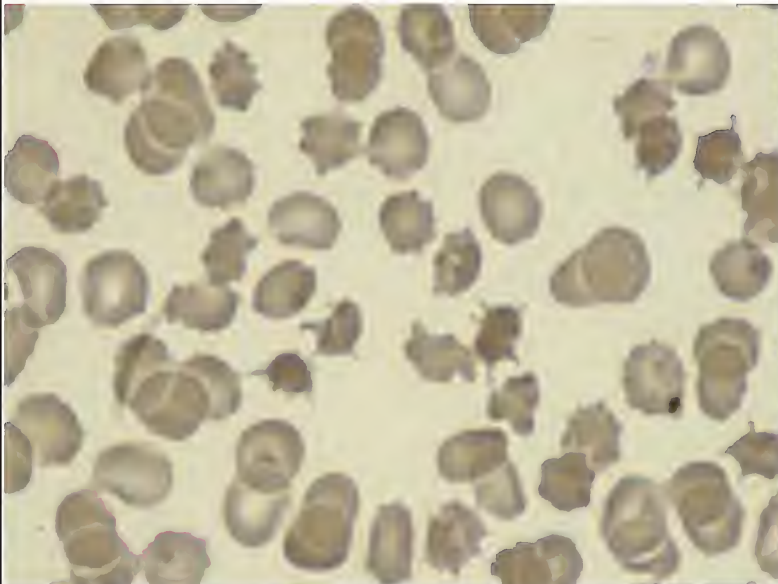
No.: 11



No.: 12

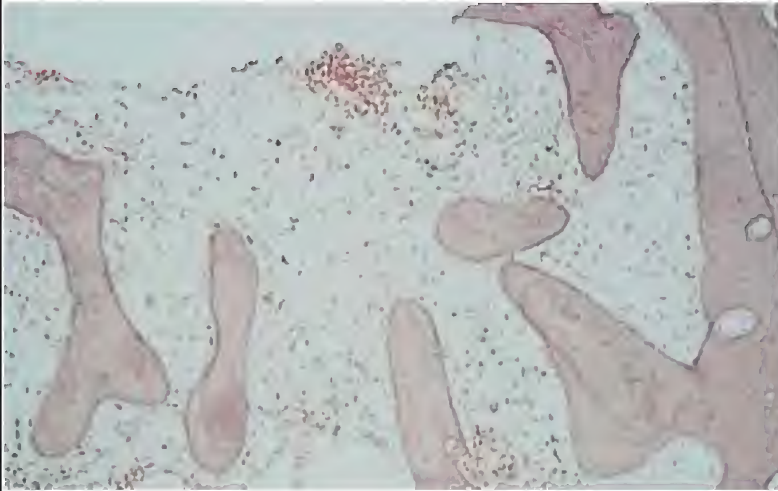


No.: 13





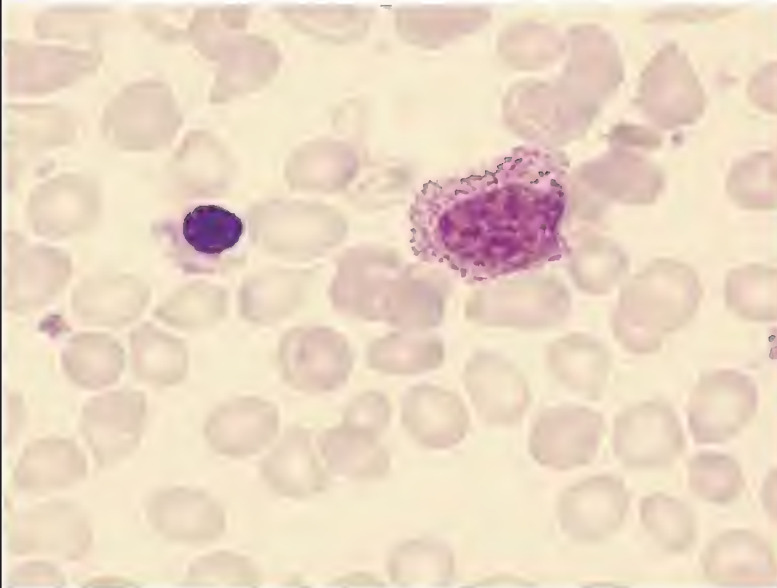
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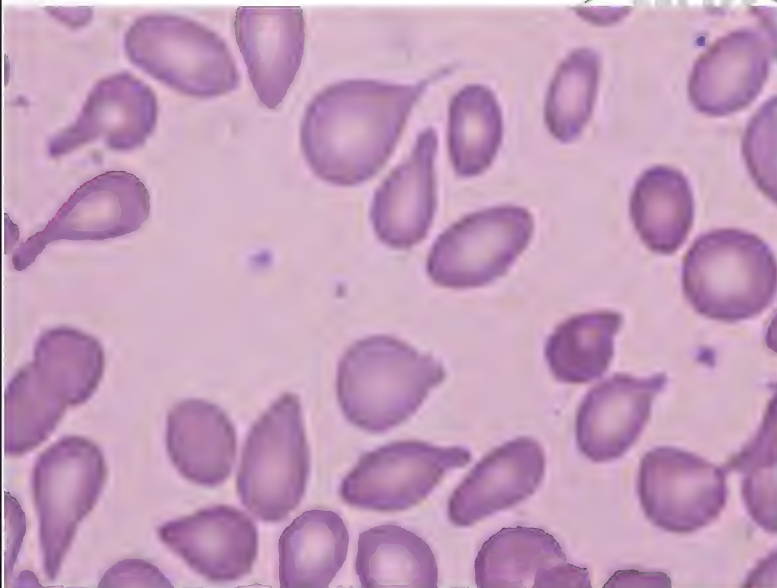
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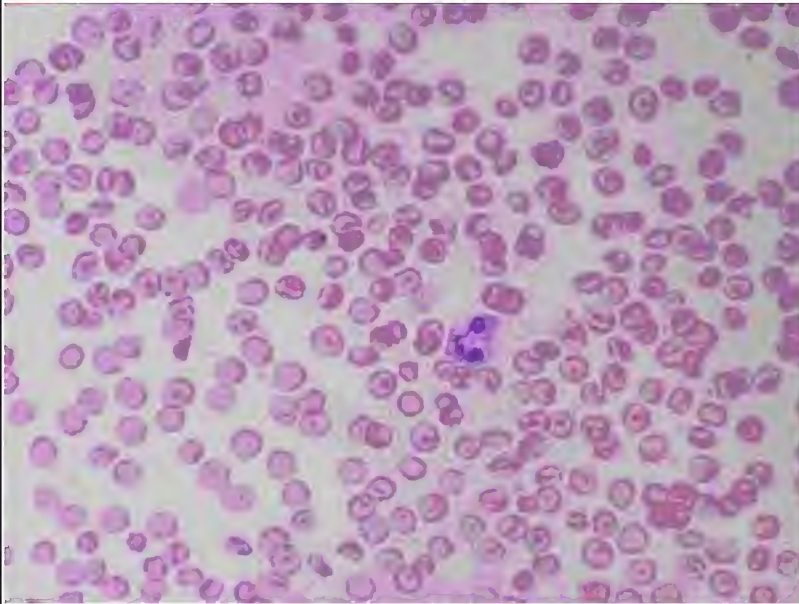
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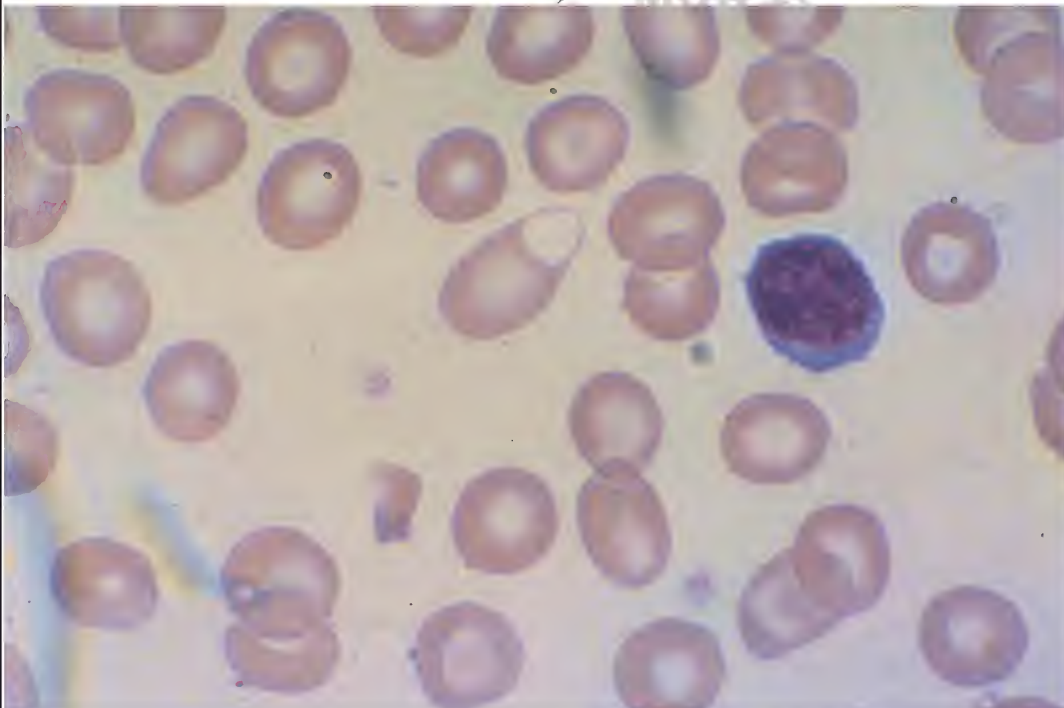
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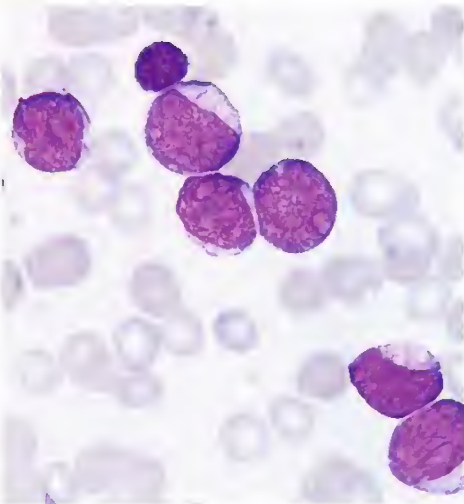
No.: 18



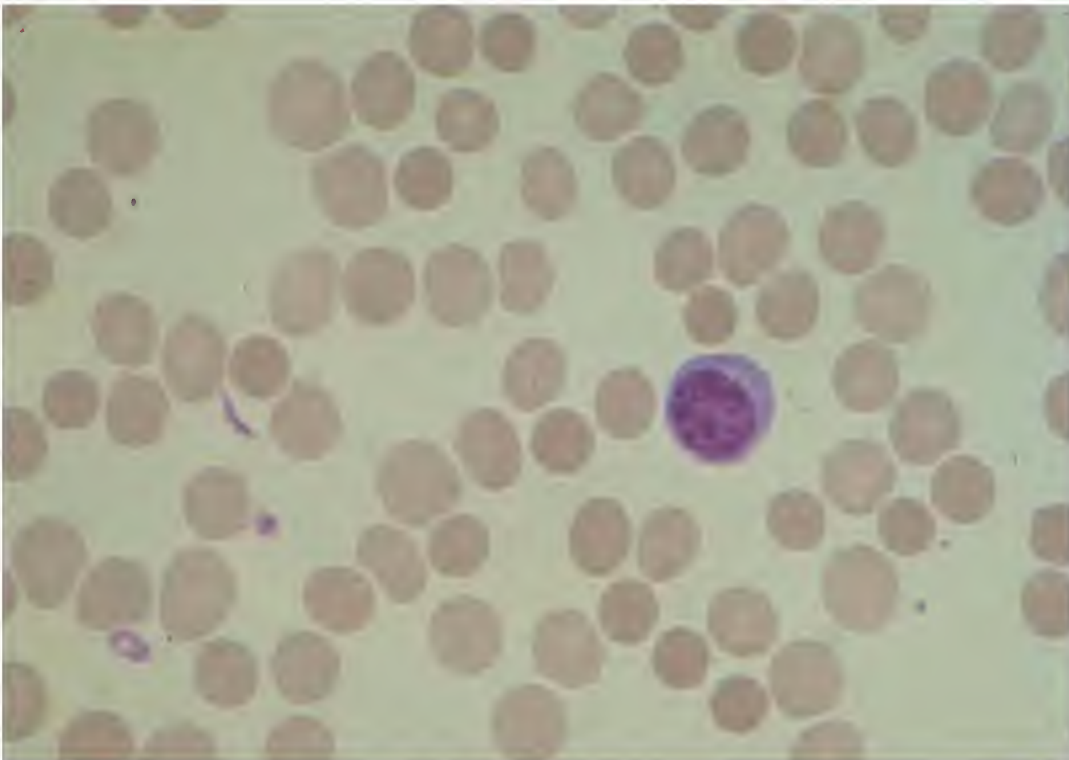
No.: 20



No.: 21

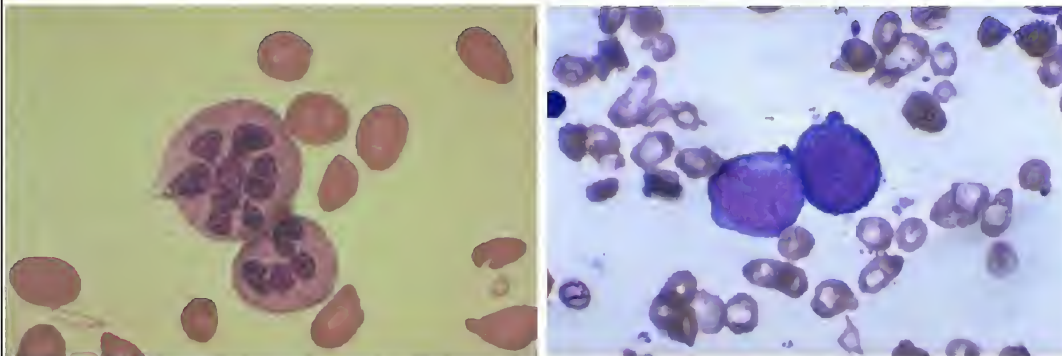


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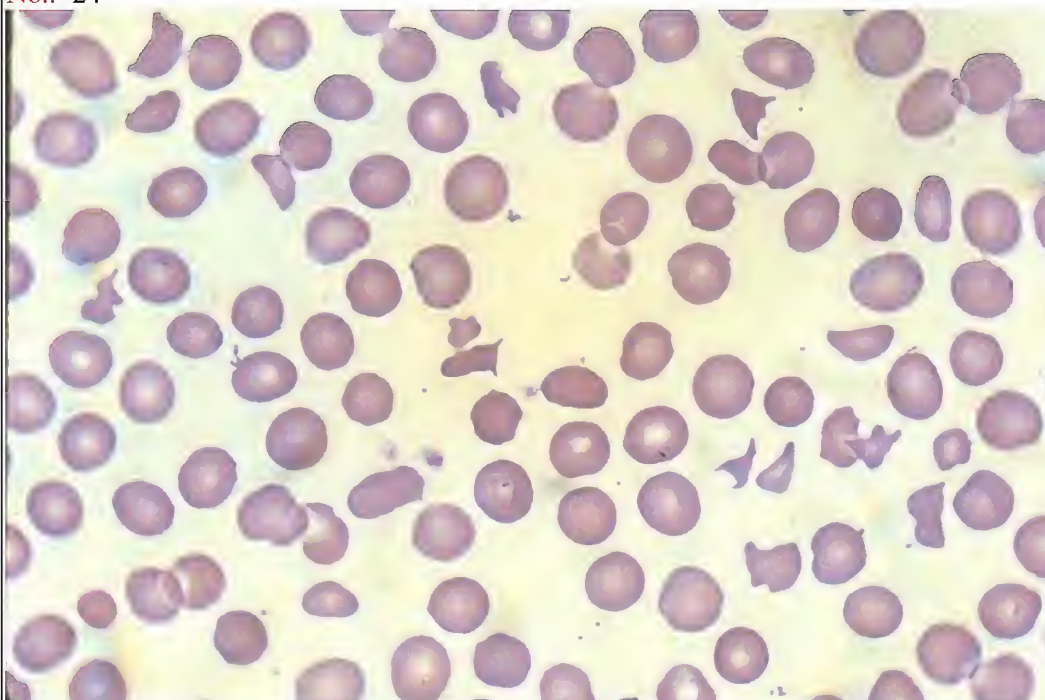




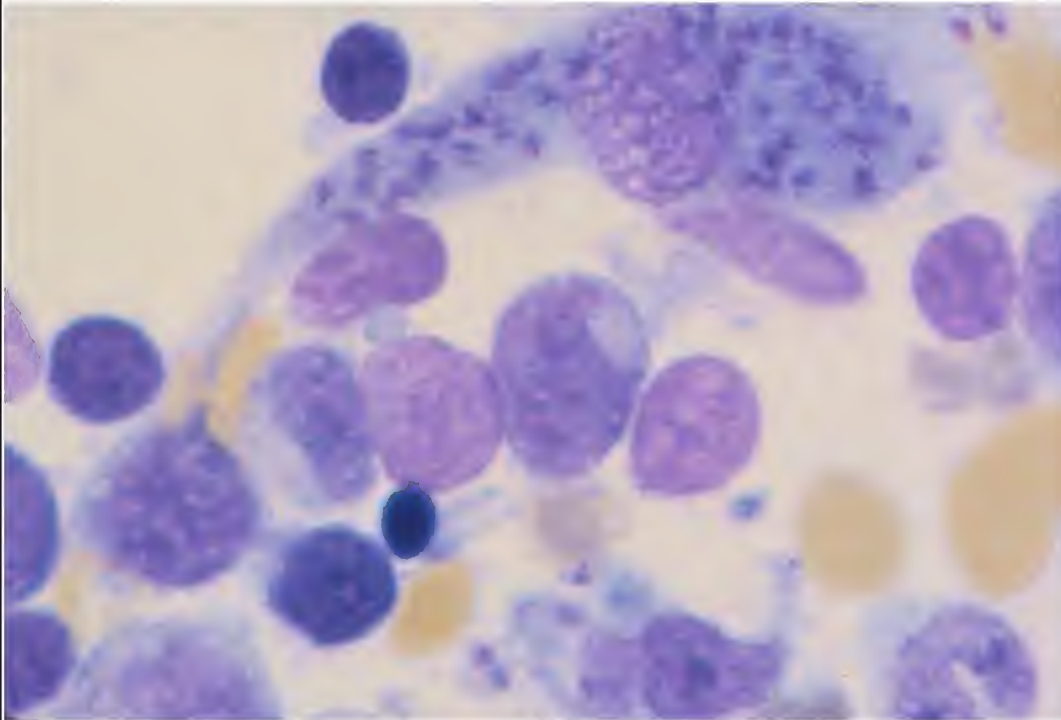
No.: 23



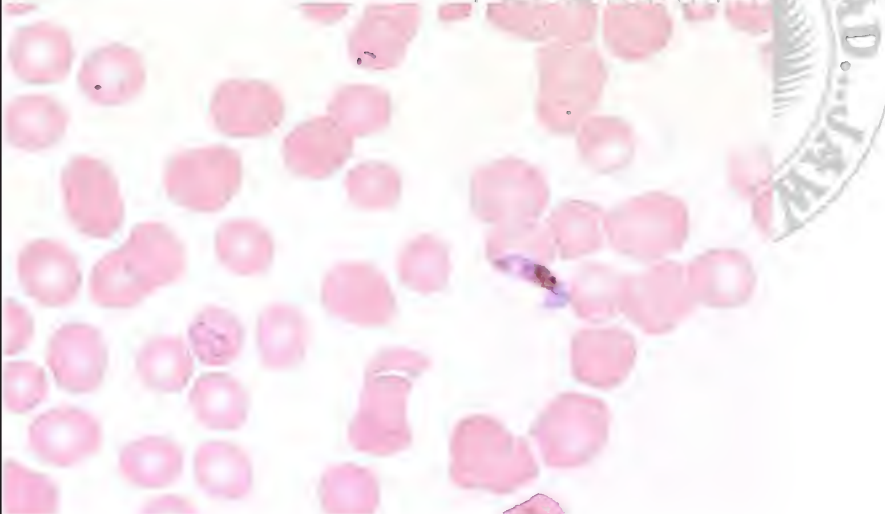
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No.: 25



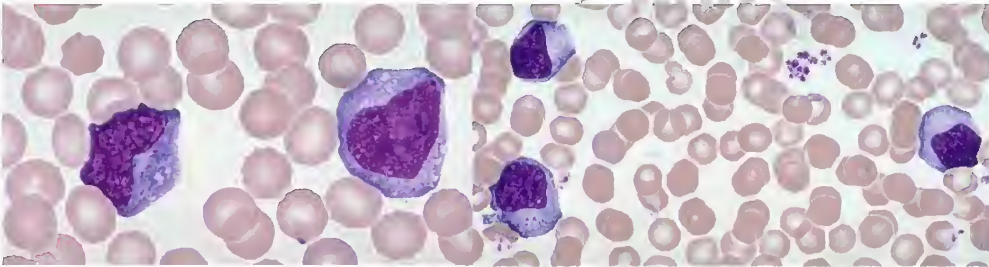
No.: 27



No.: 29

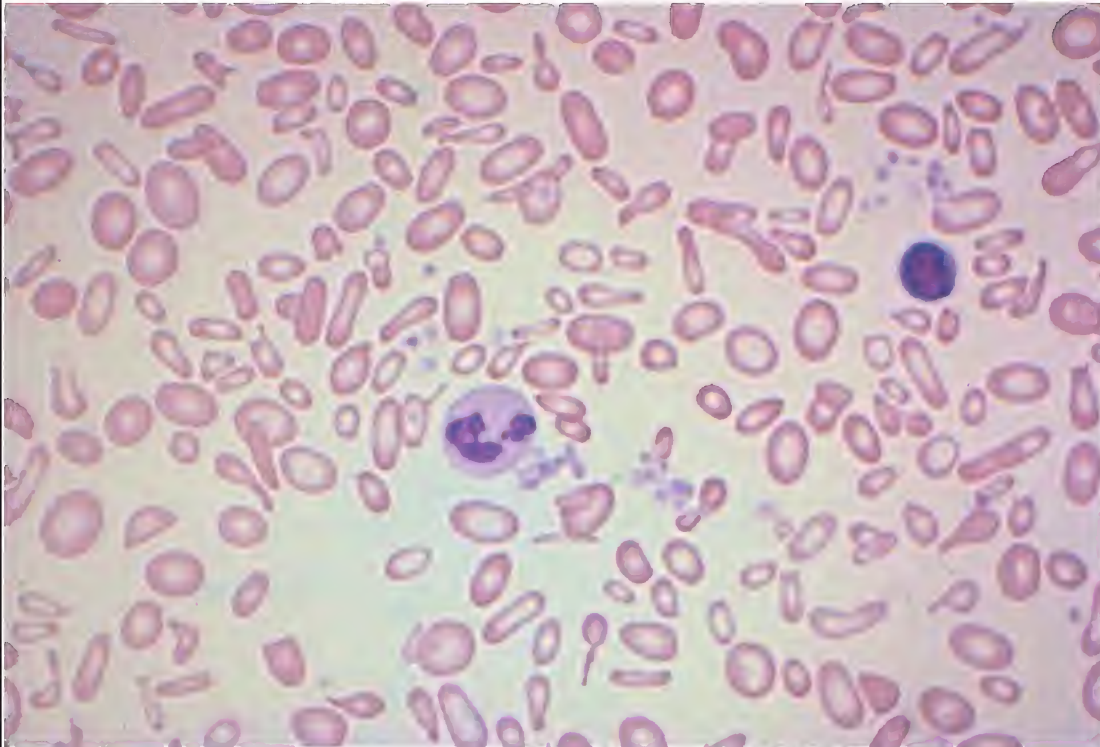


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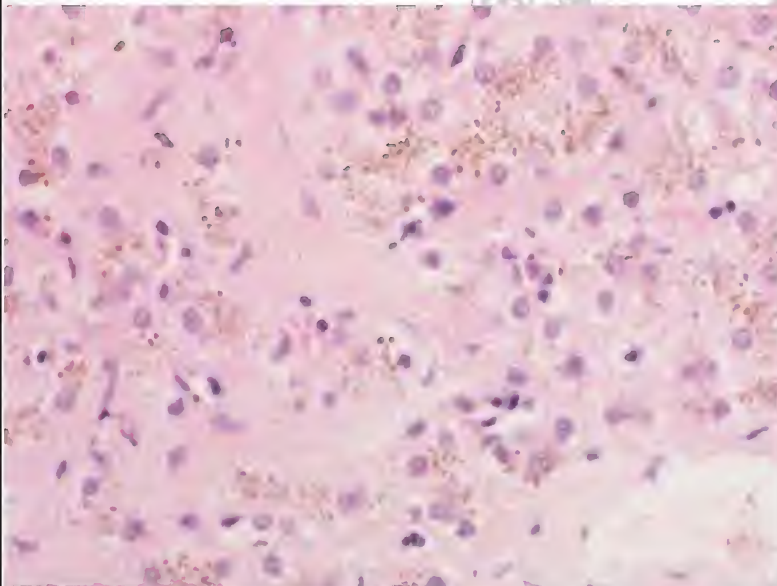




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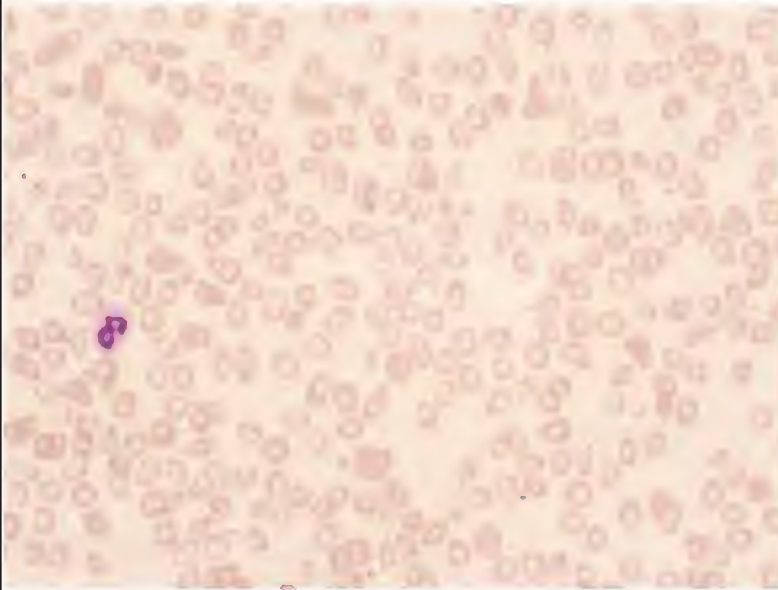


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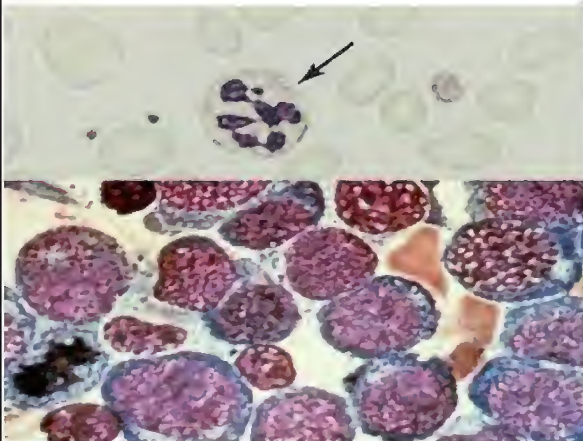




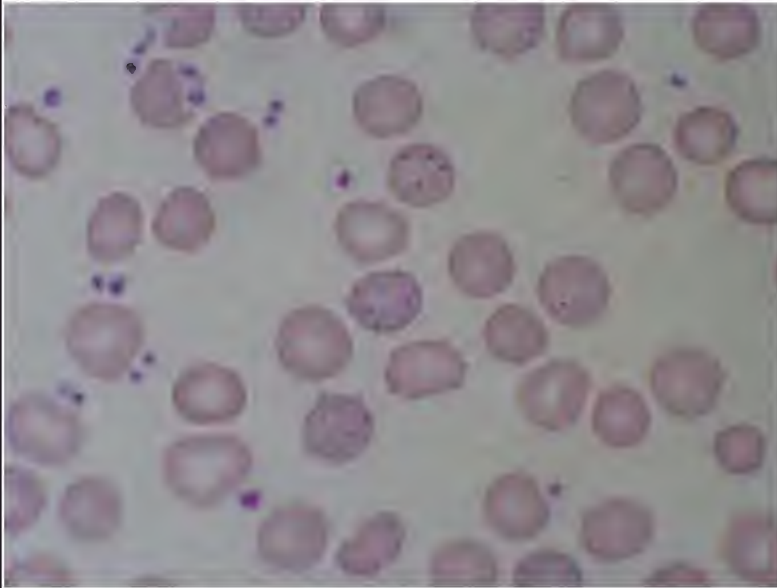
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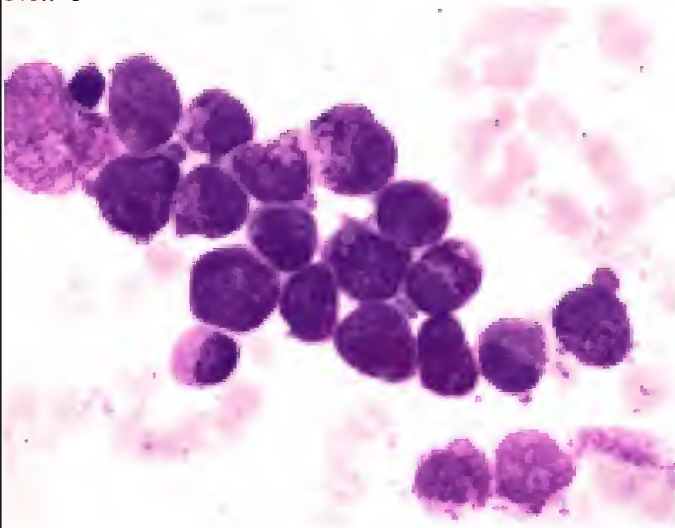
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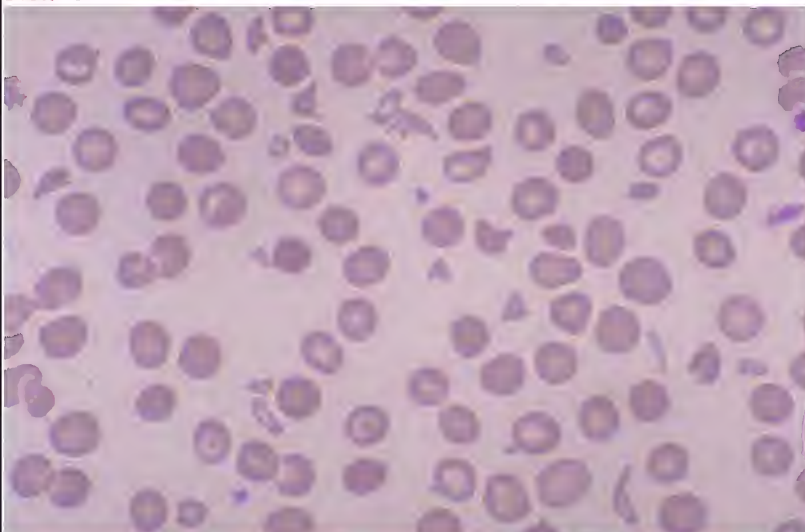
No.: 39



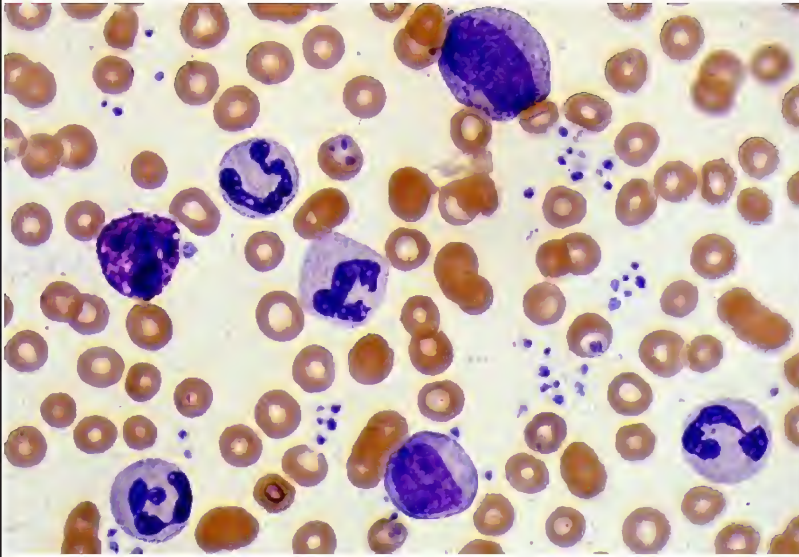
No.: 5



No.: 6



No.: 13

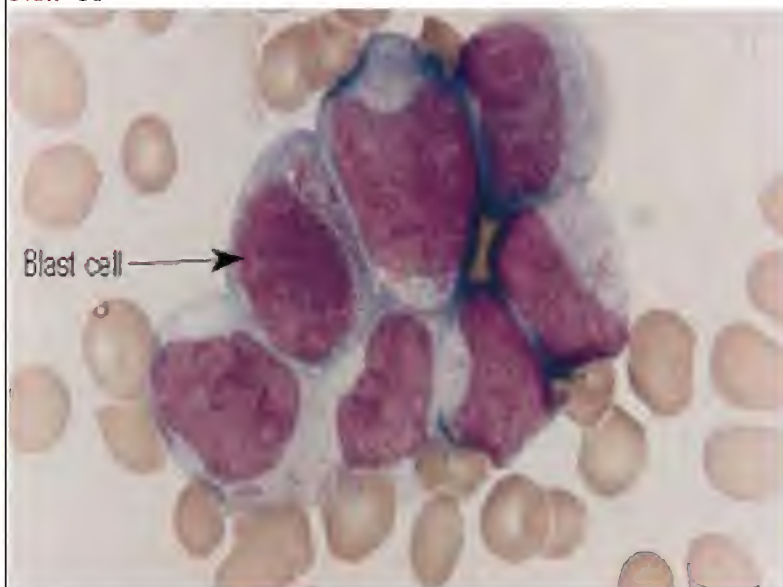


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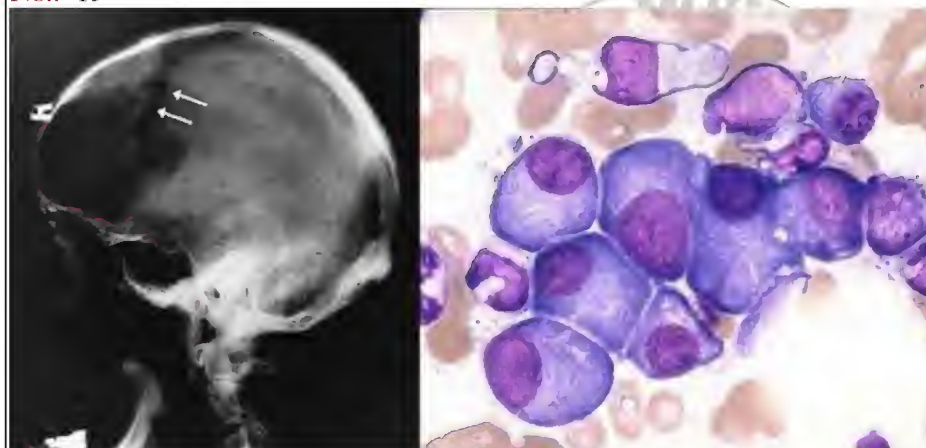




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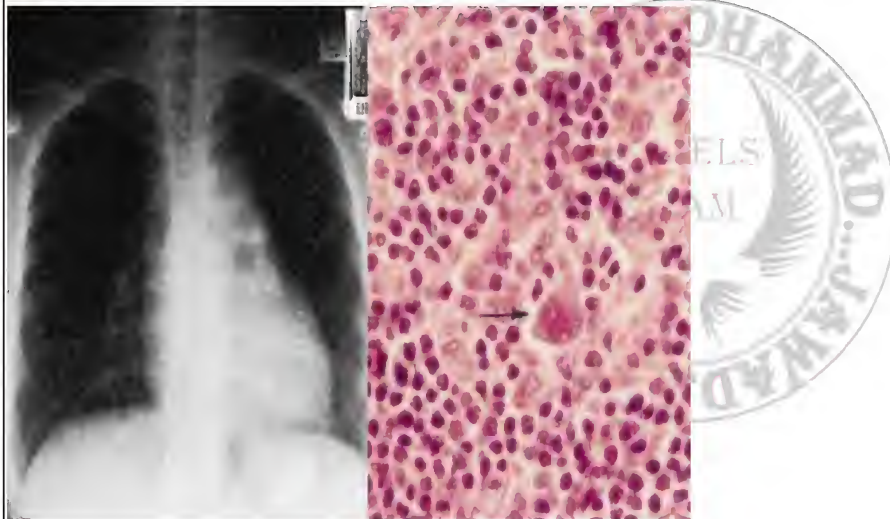
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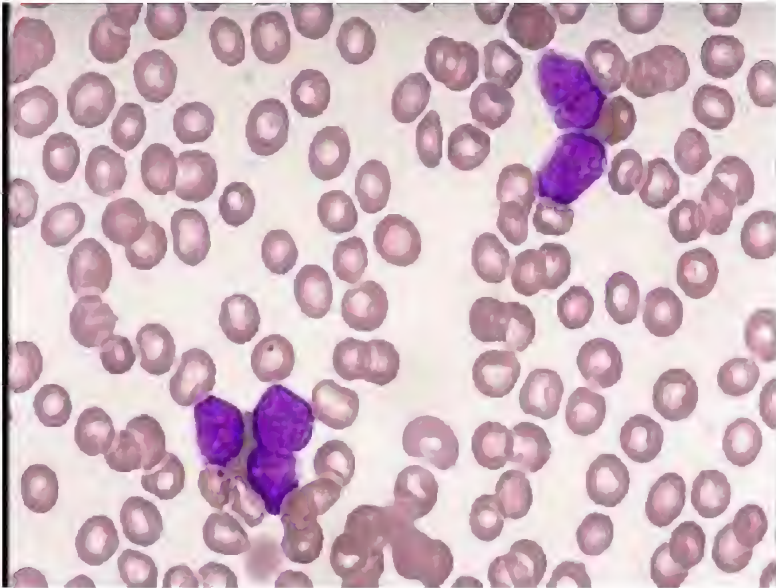
No.: 21



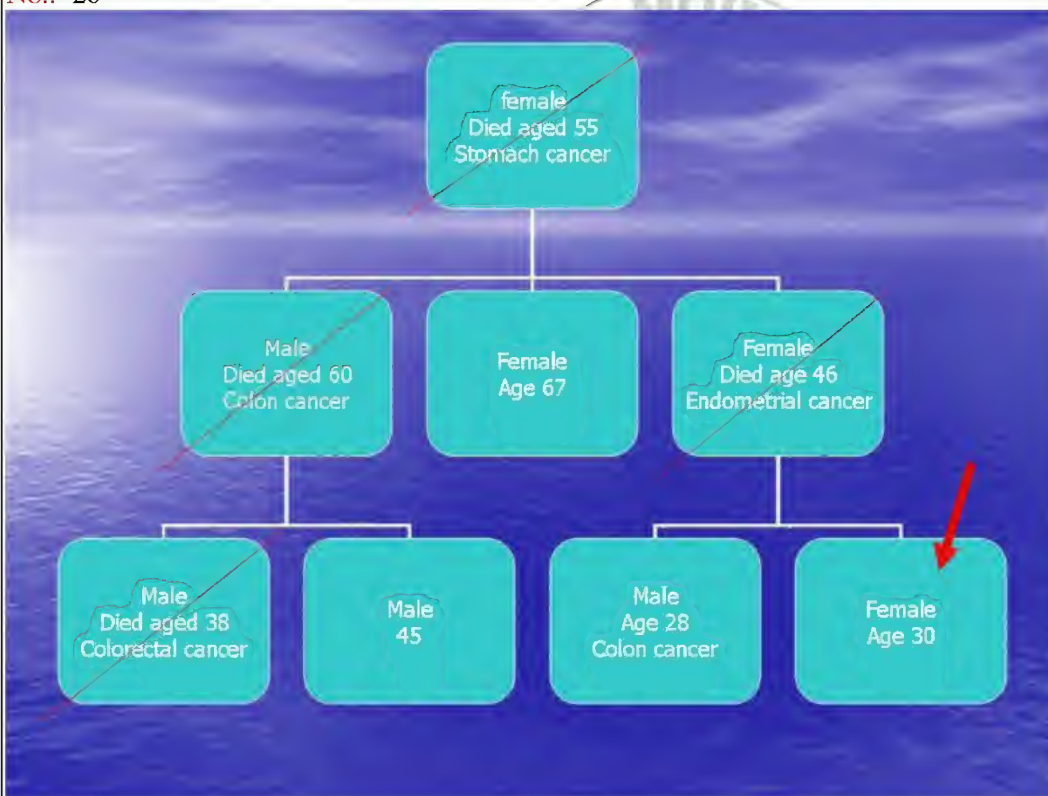
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No.: 25

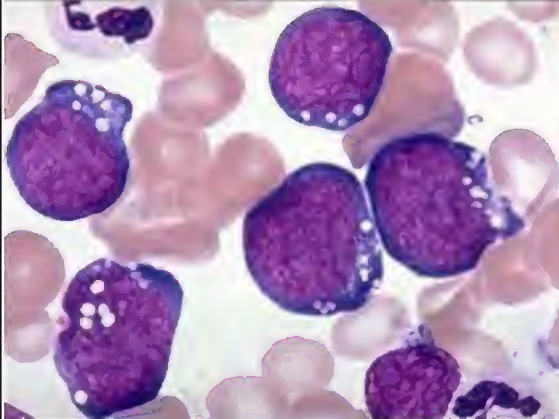


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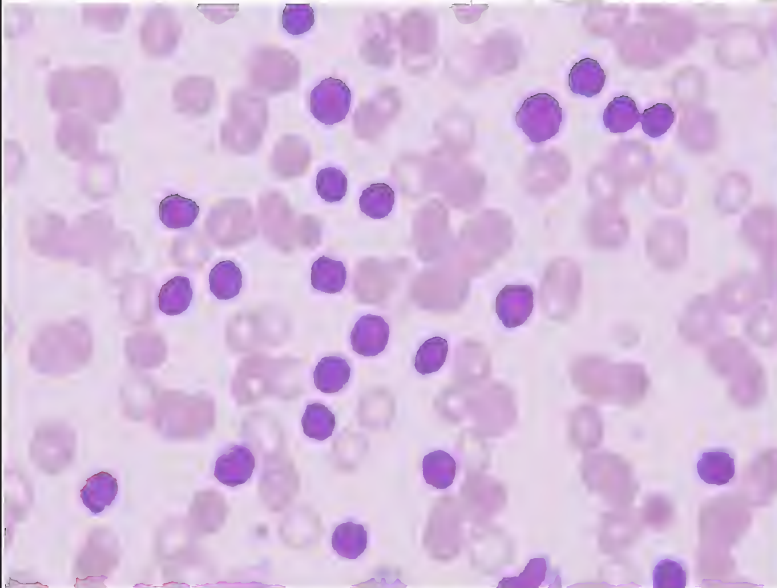




No.: 28



No.: 31

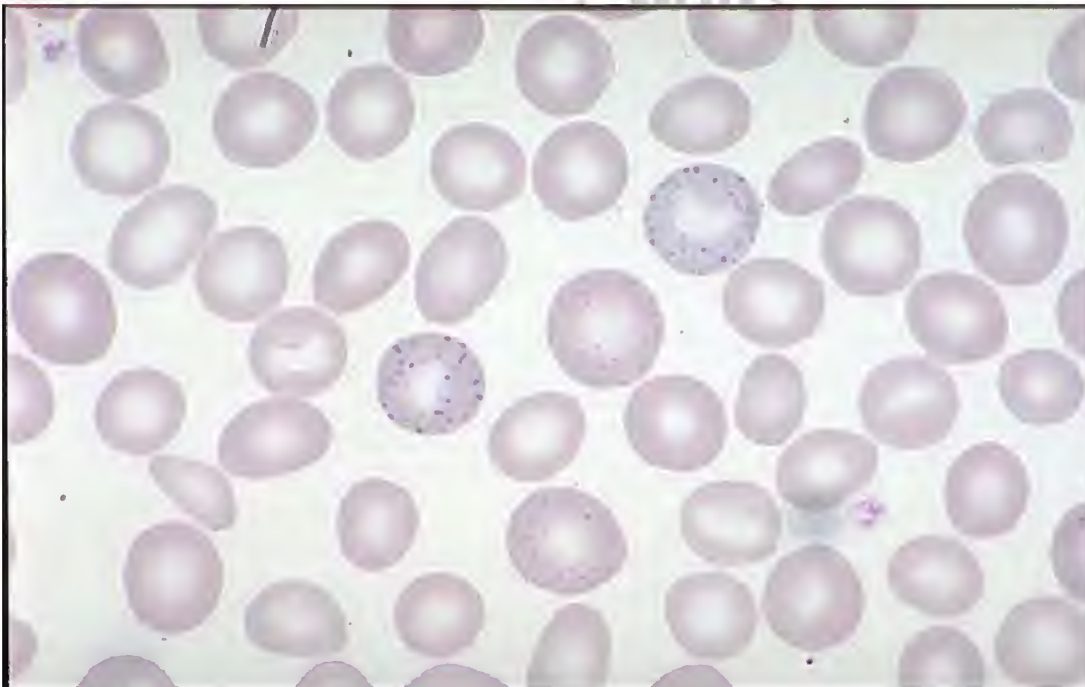




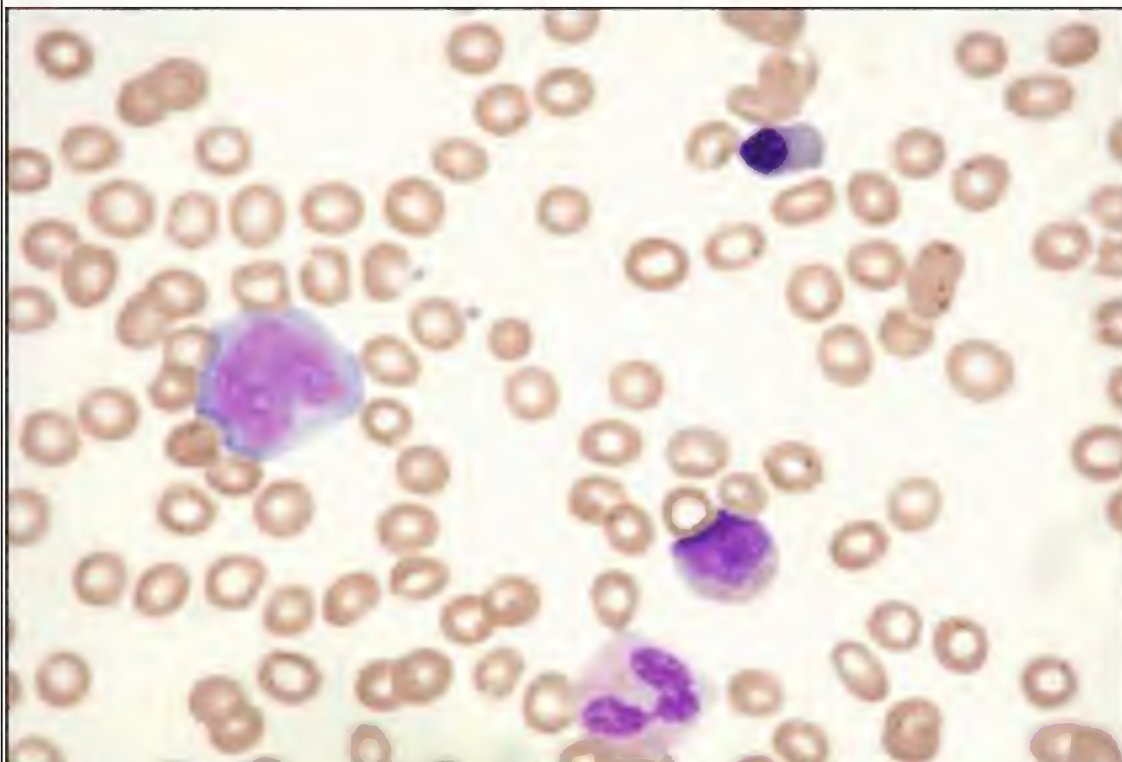
No.: 33



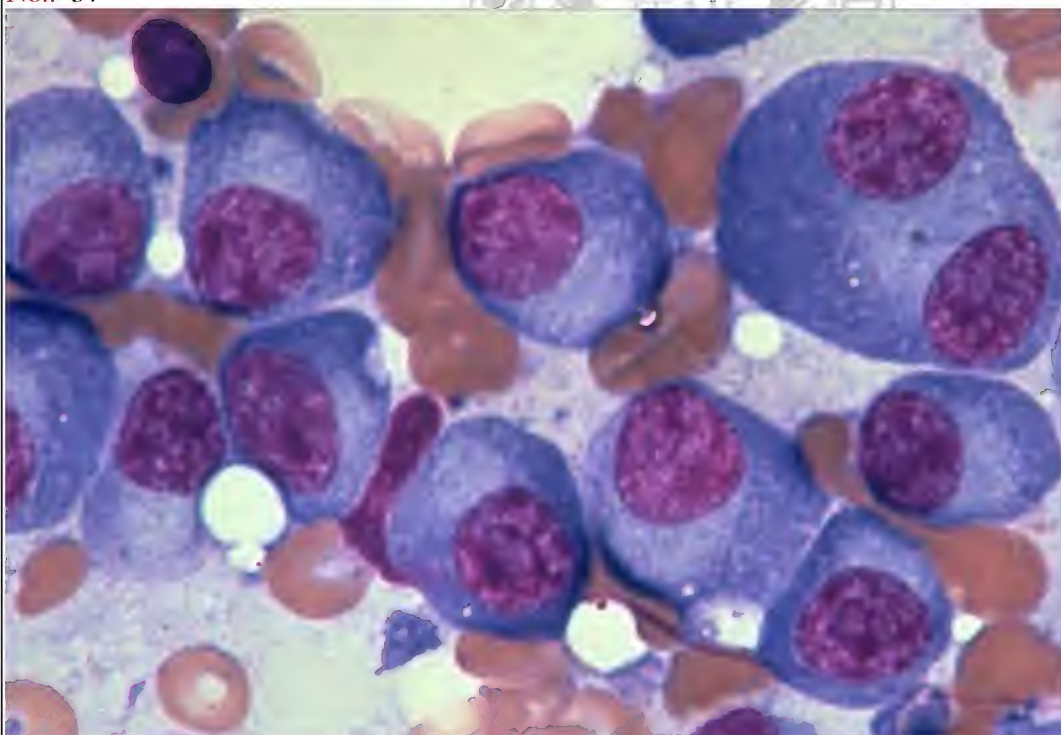
No.: 35



No.: 36



No.: 37



No.: 38



No.: 27





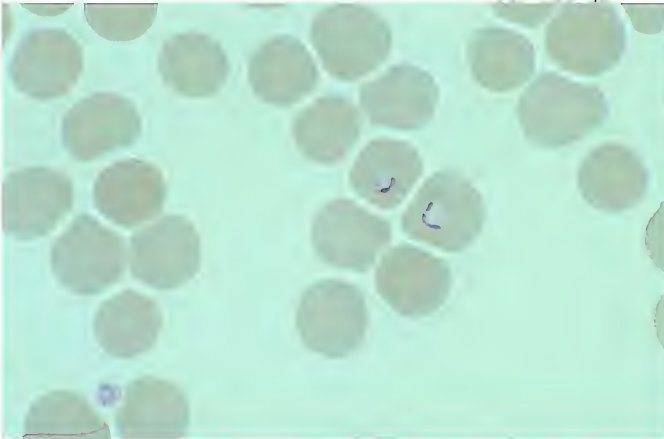
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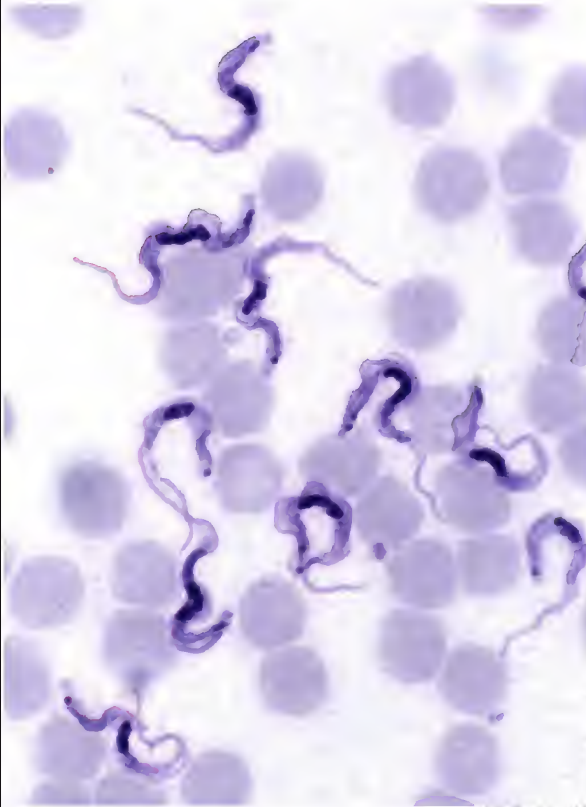
No.: 29



No.: 58



No.: 64

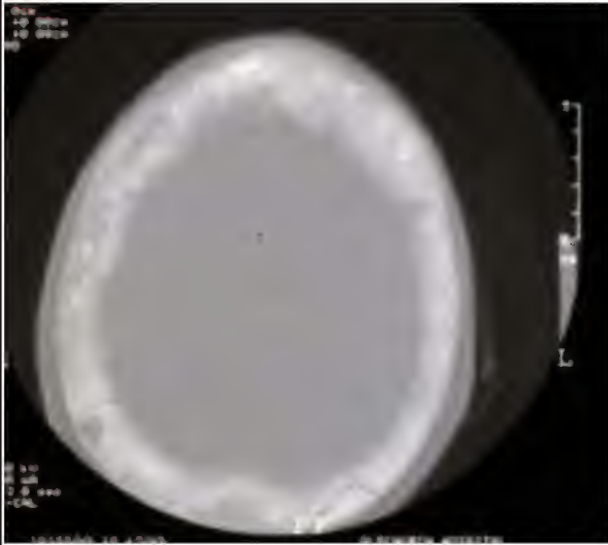


No.: 7





No.: 85



No.: 86



No.: 87



No.: 88



No.: 99





No.: 100



No.: 101



No.: 102



No.: 103





No.: 104



No.: 105



No.: 106



No.: 107



No.: 109





No.: 113



No.: 115



No.: 116



No.: 117





No.: 128



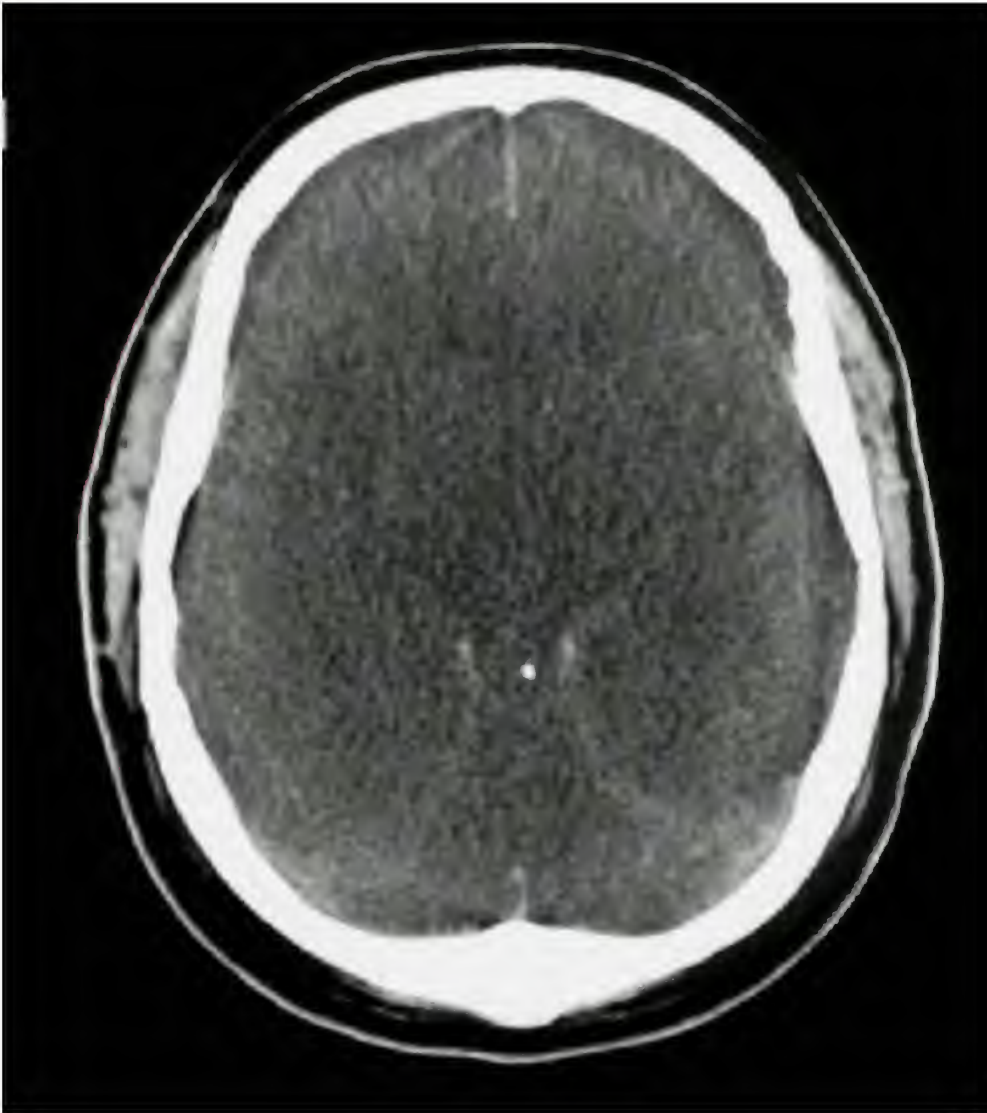
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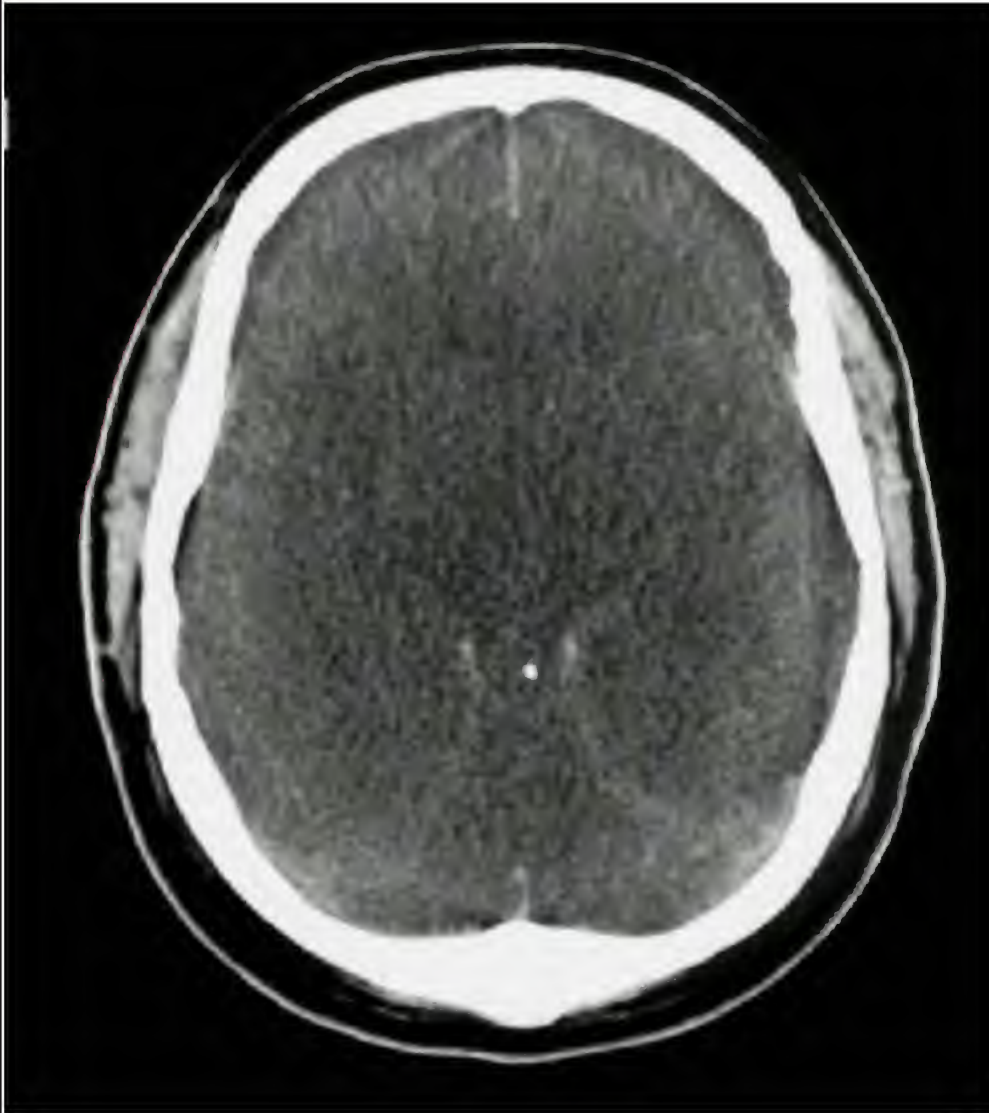
No.: 134



No.: 1

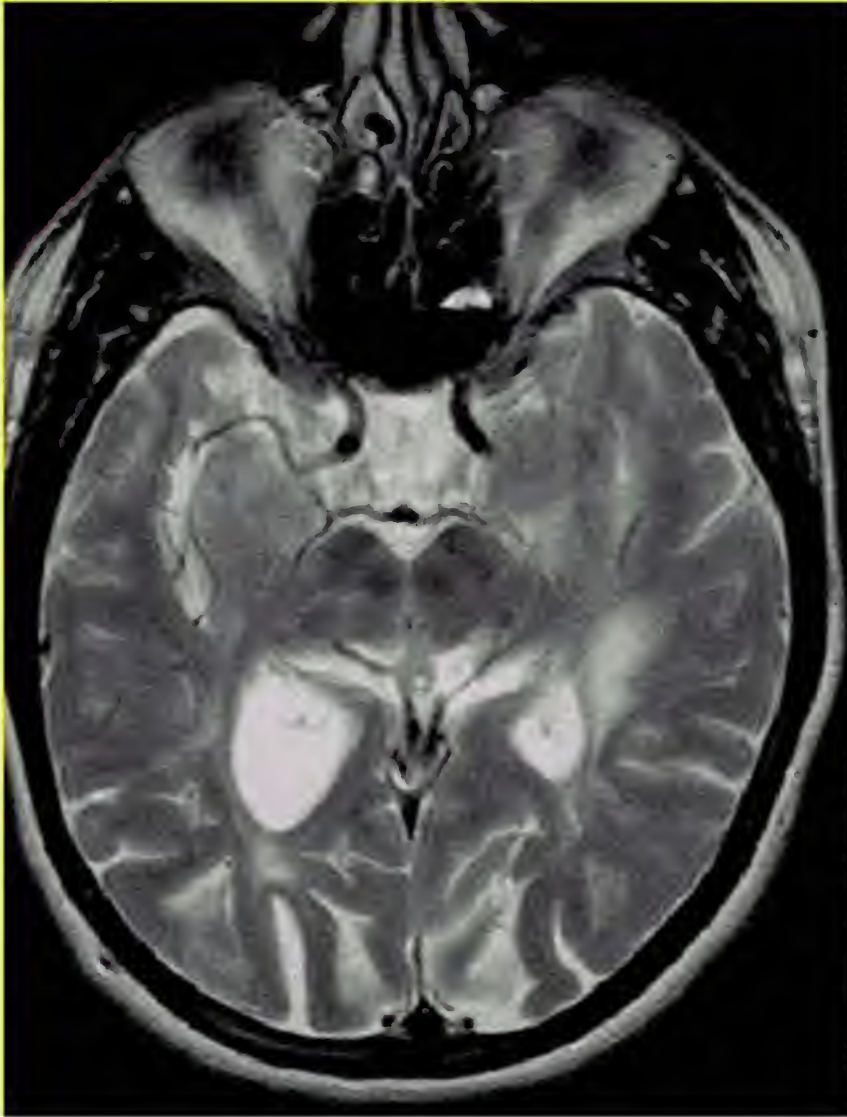


No.: 2





No.: 3



No.: 4



No.: 5



No.: 6

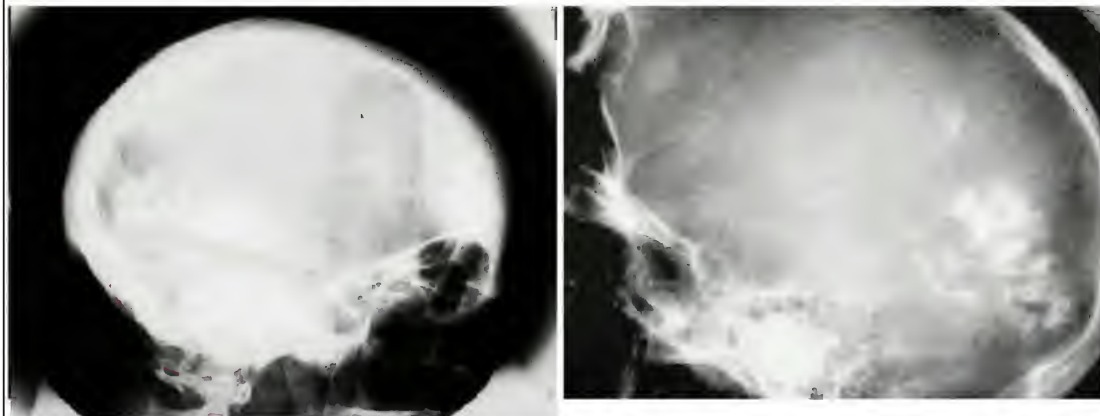




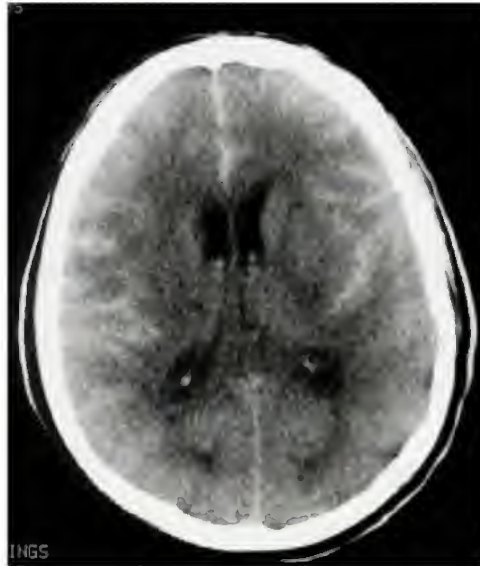
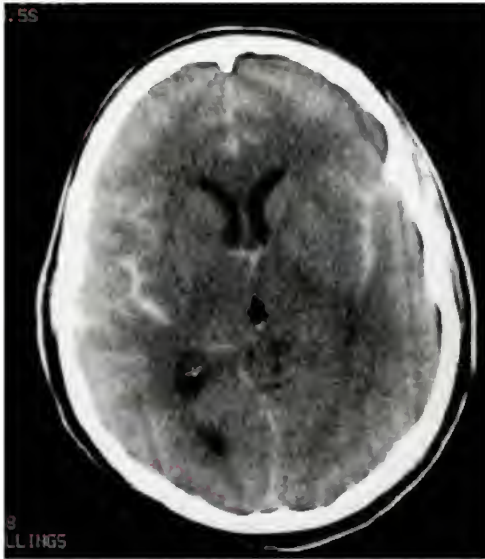
No.: 7



No.: 8



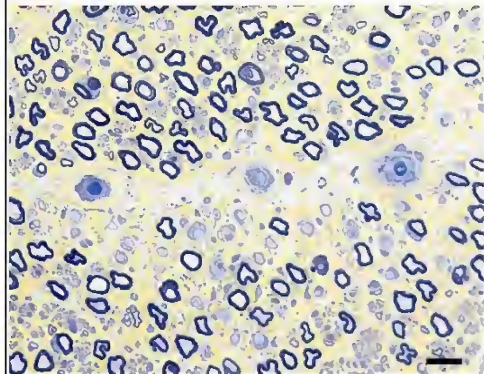
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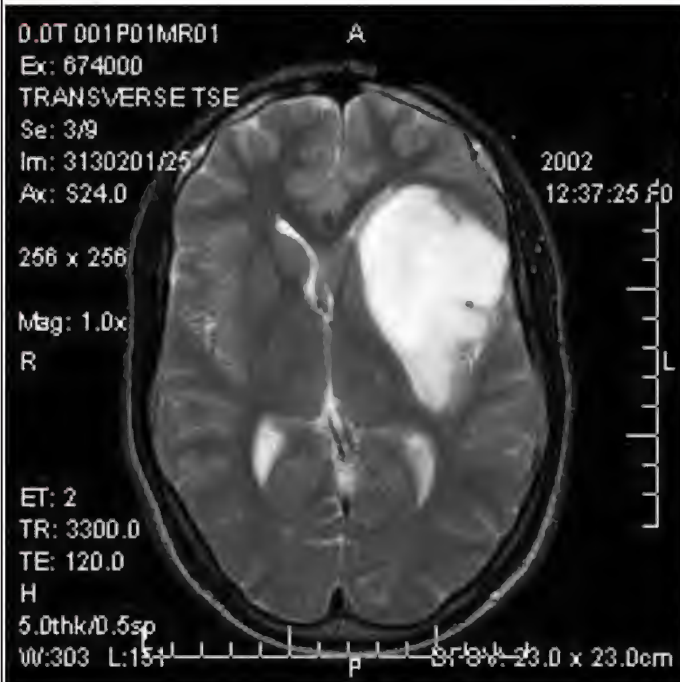
No.: 10



No.: 11



No.: 18

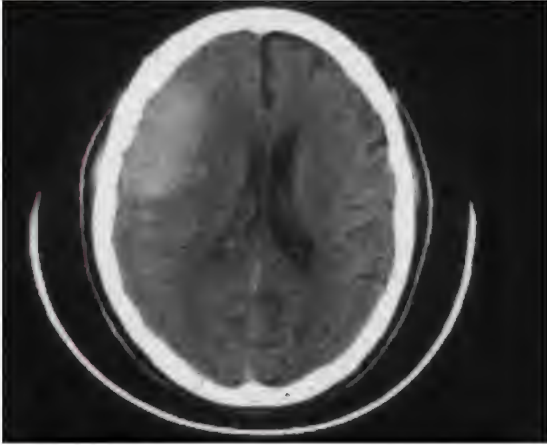


No.: 22





No.: 27



No.: 32



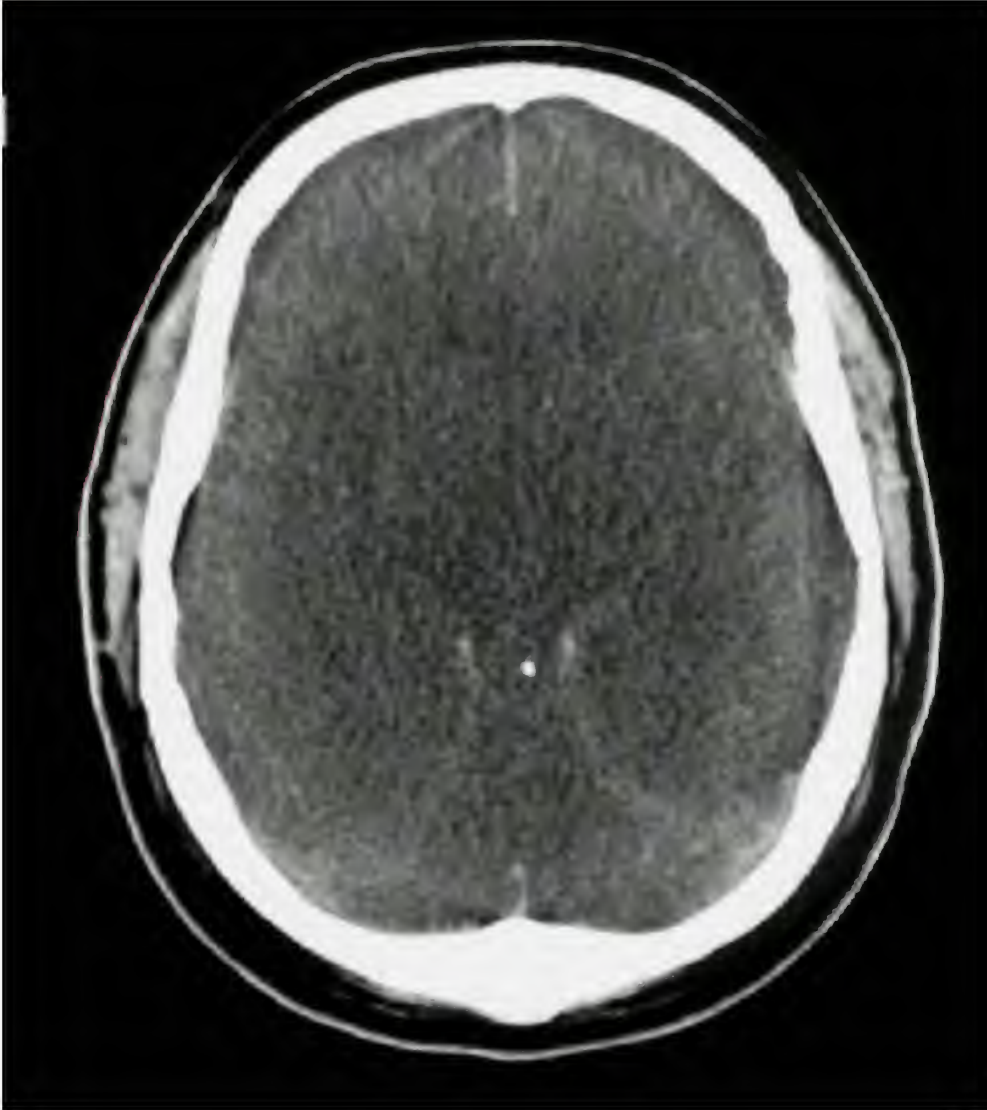
No.: 33



No.: 46



No.: 47



No.: 48





No.: 49



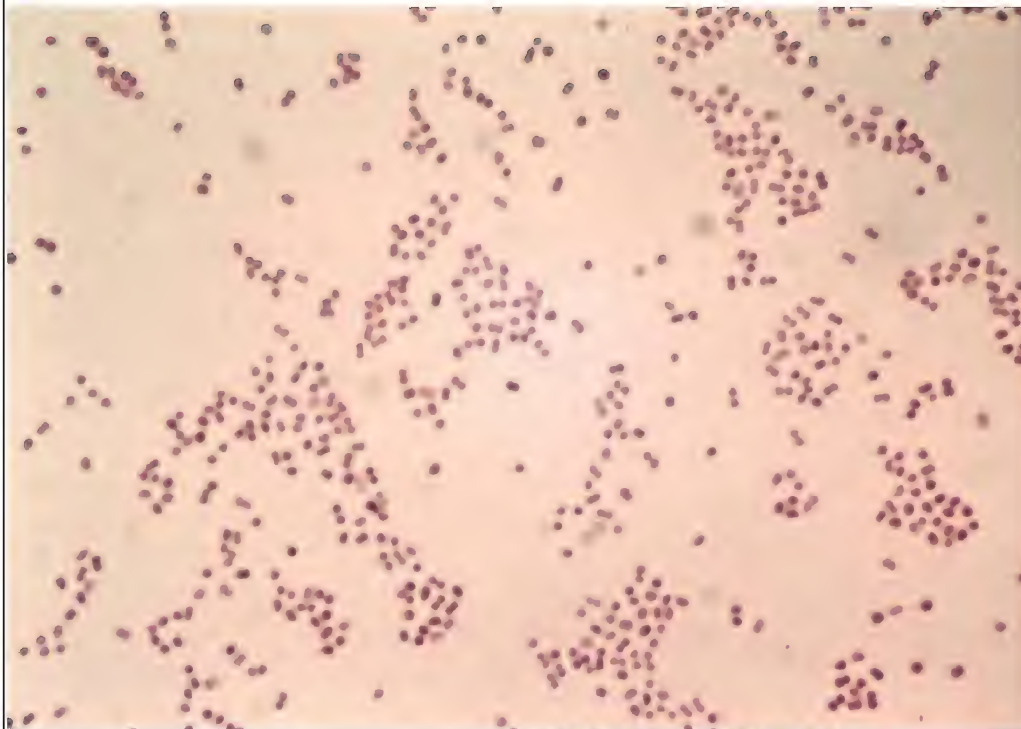
No.: 50



No.: 52



No.: 55

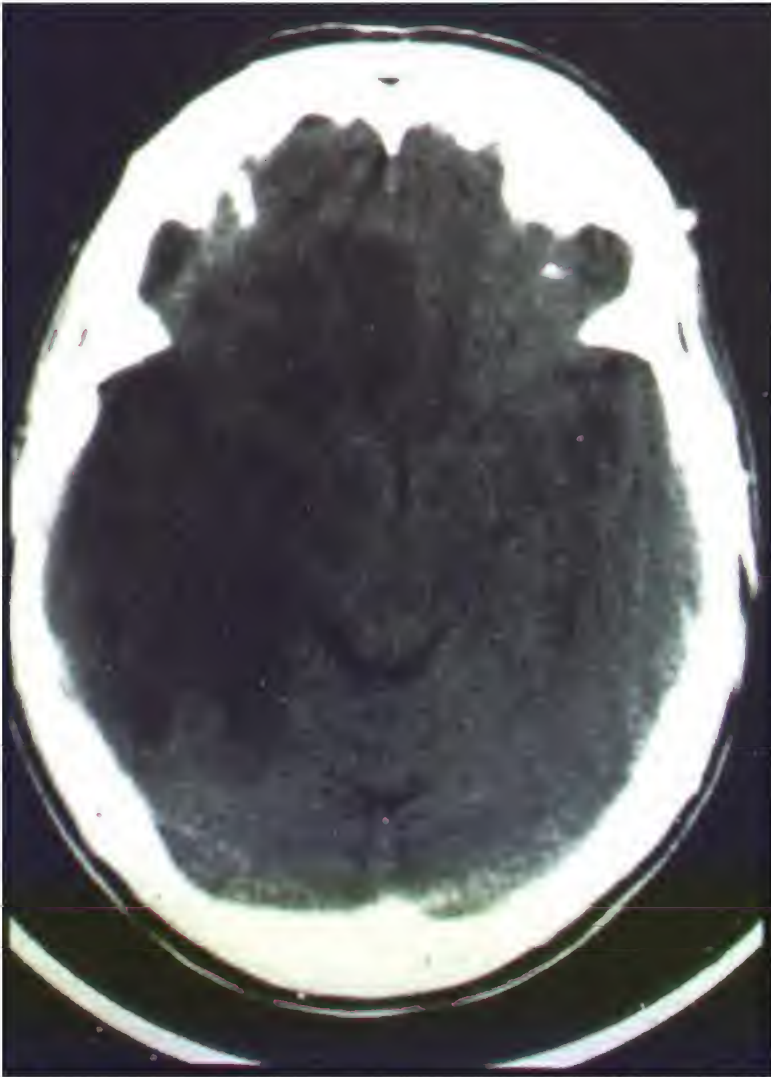


No.: 59

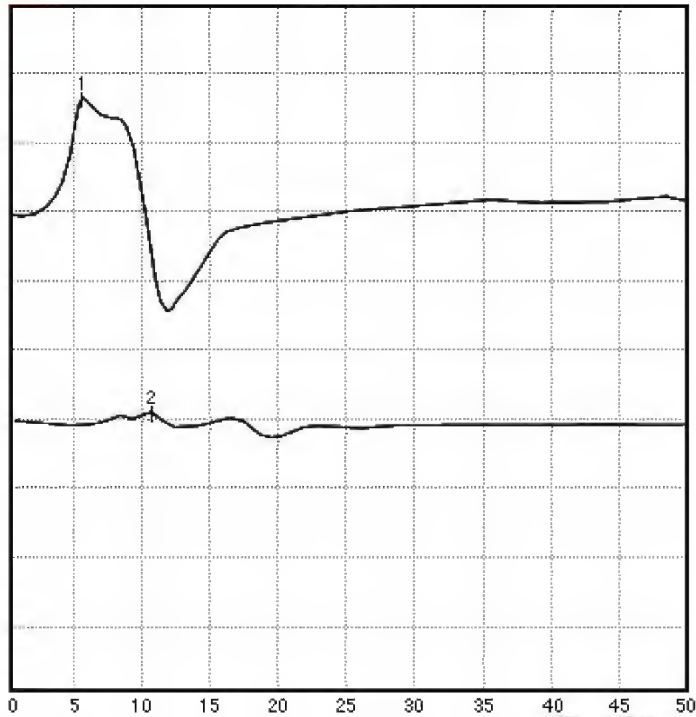




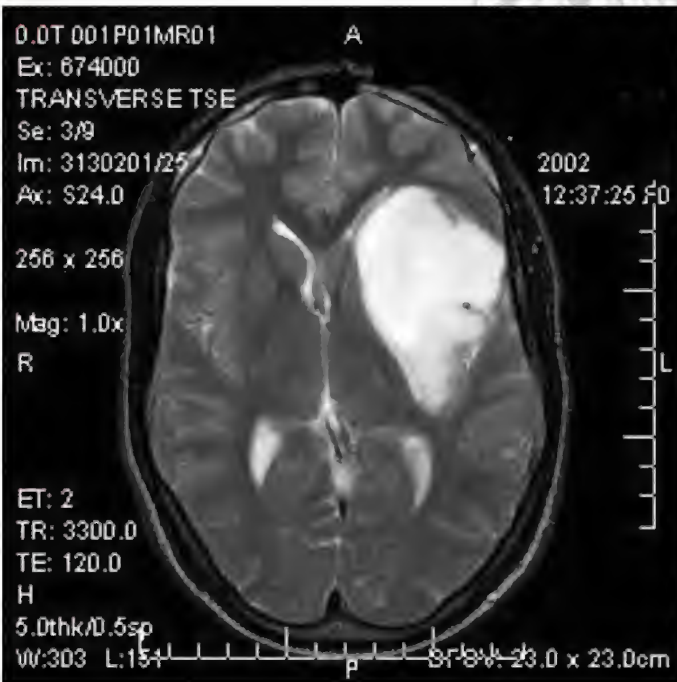
No.: 64



No.: 66



No.: 70



No.: 73



No.: 101



No.: 102

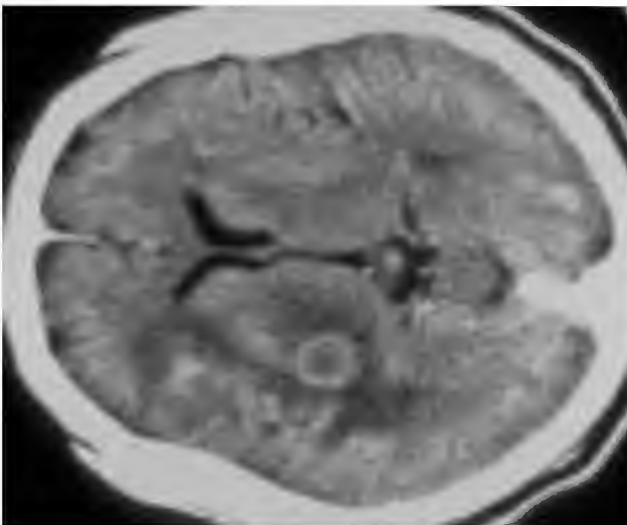




No.: 104



No.: 108



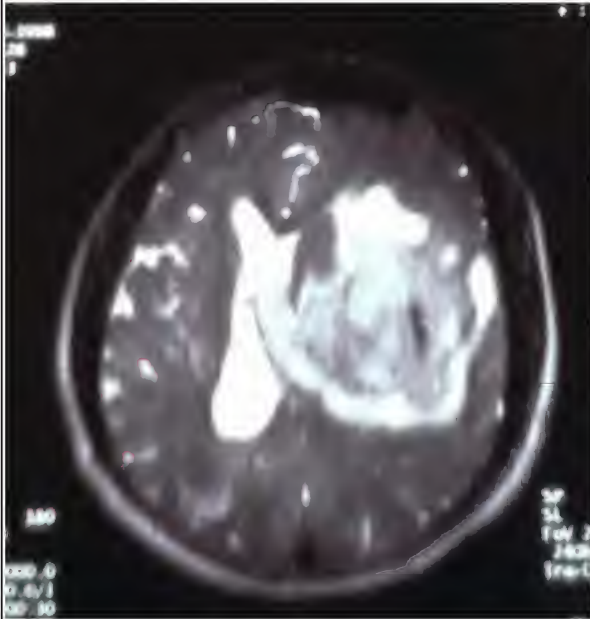
No.: 148



No.: 149



No.: 150



No.: 154



No.: 155

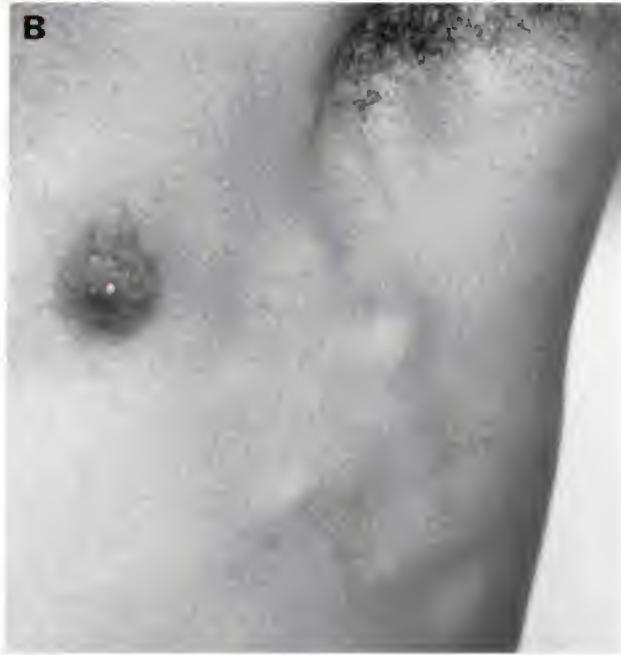




No.: 158



No.: 160



No.: 161



No.: 165



No.: 166



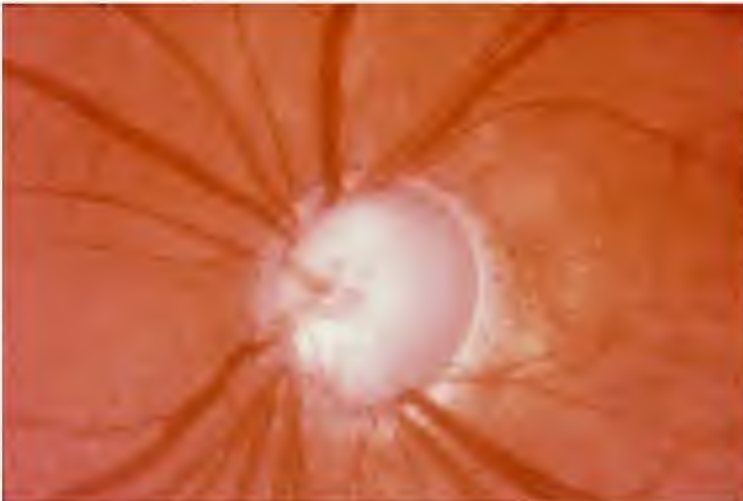
No.: 170



No.: 171



No.: 175

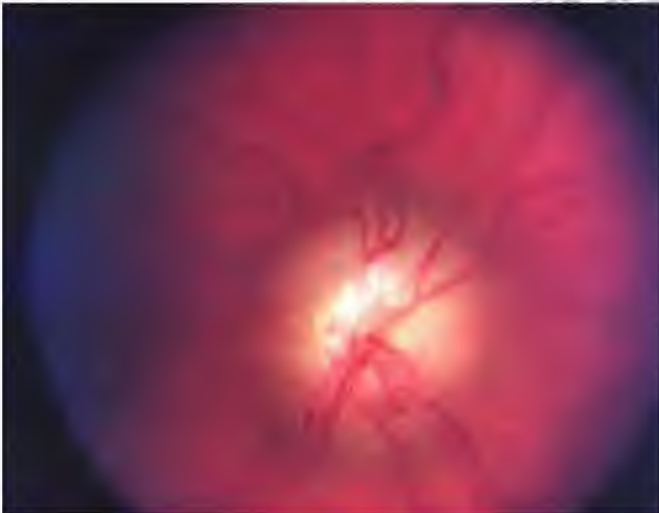




No.: 176



No.: 180



No.: 181



No.: 185



No.: 186



No.: 190



No.: 191



No.: 195





No.: 196



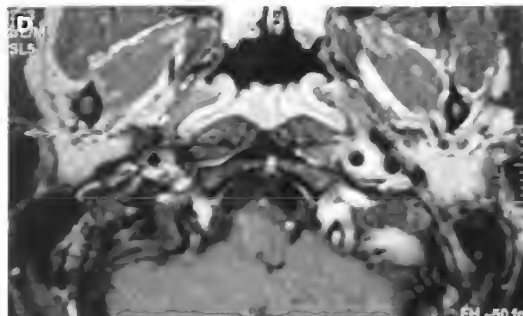
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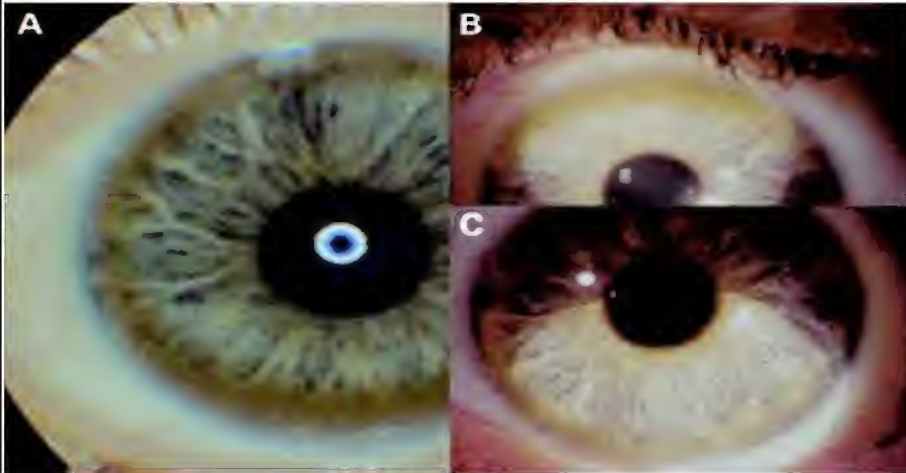
No.: 201



No.: 205



No.: 206



No.: 209



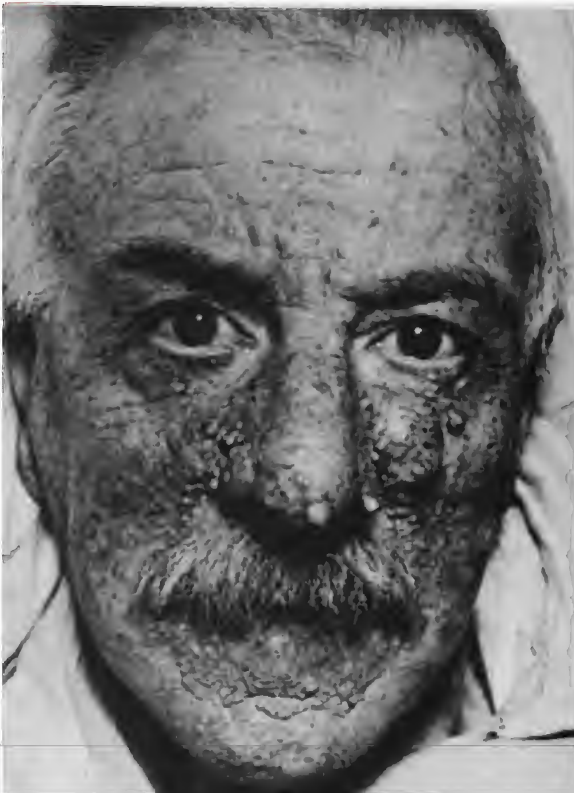
No.: 210



No.: 211

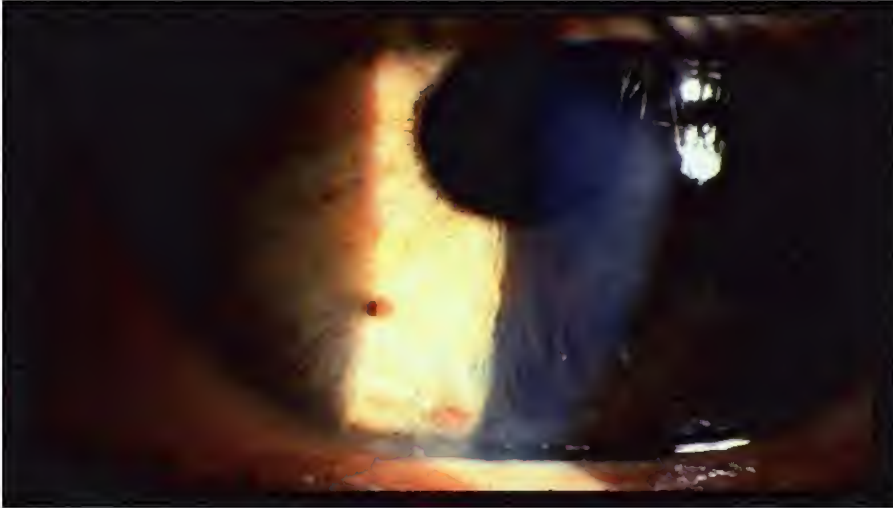


No.: 214





No.: 215



No.: 216



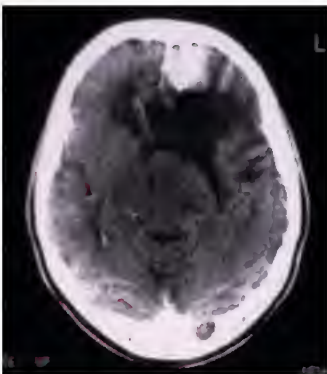
No.: 219



No.: 220



No.: 221



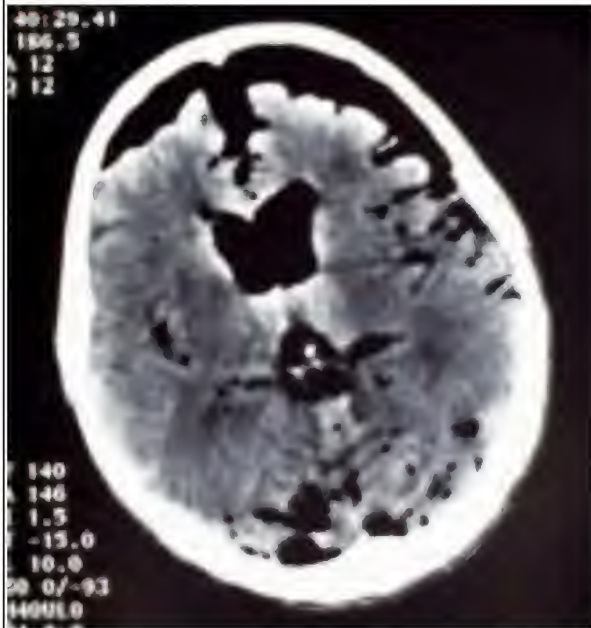
No.: 224



No.: 225



No.: 226





No.: 10

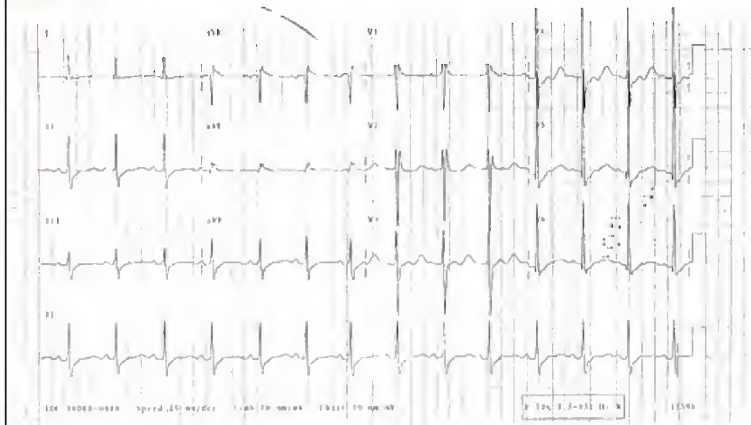


Figure 1

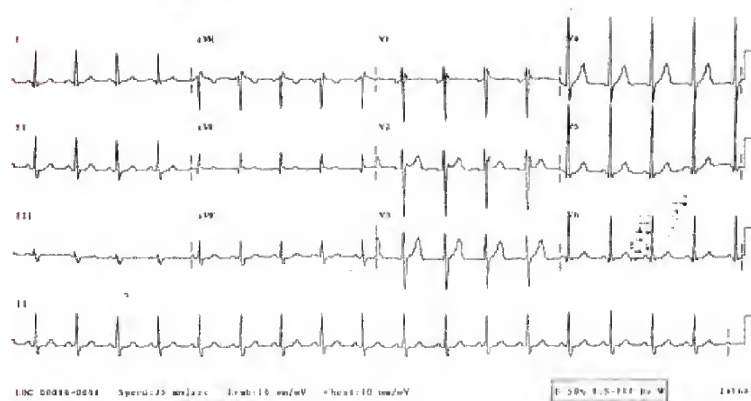


Figure 2

No.: 15



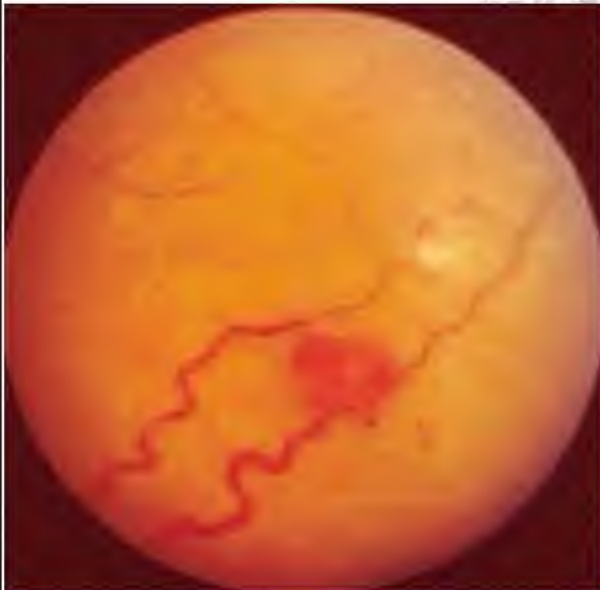
No.: 16



No.: 17



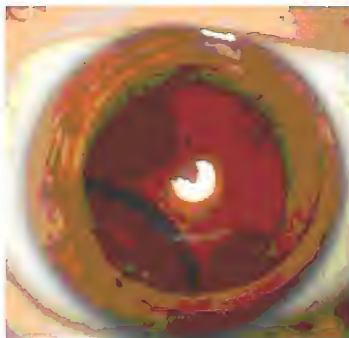
No.: 18



No.: 19

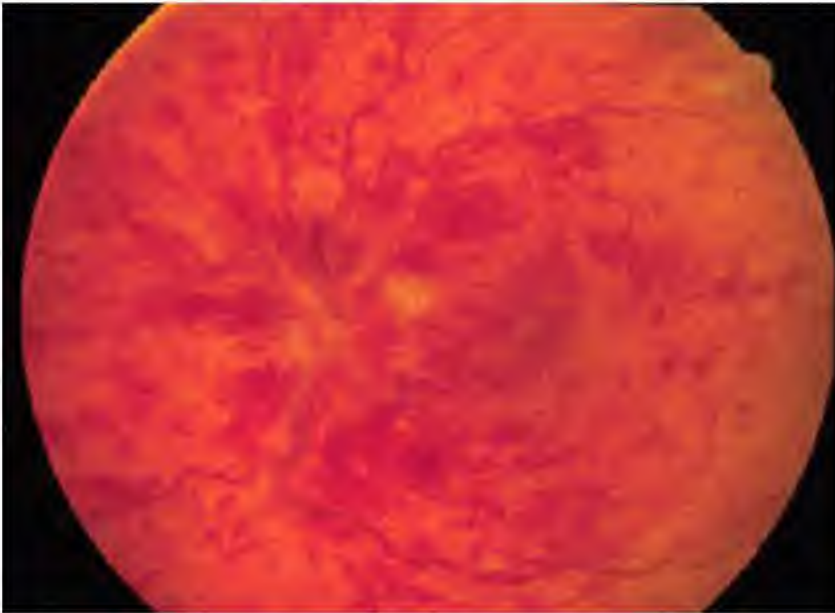


No.: 20

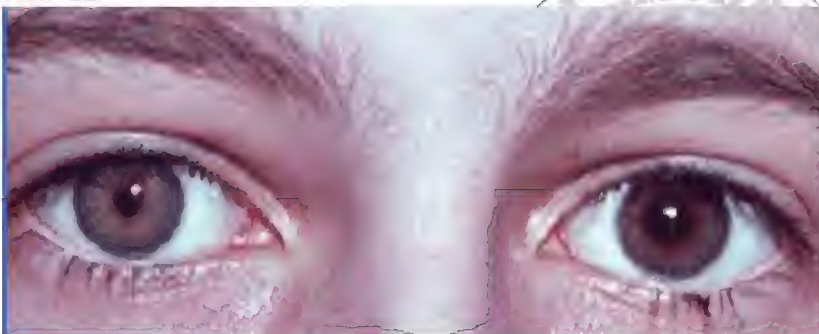




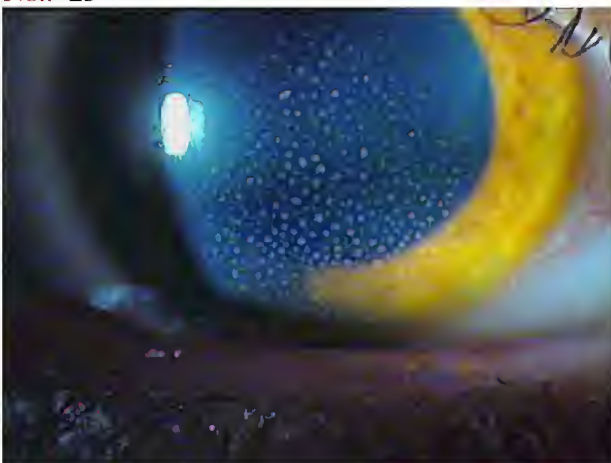
No.: 21



No.: 22



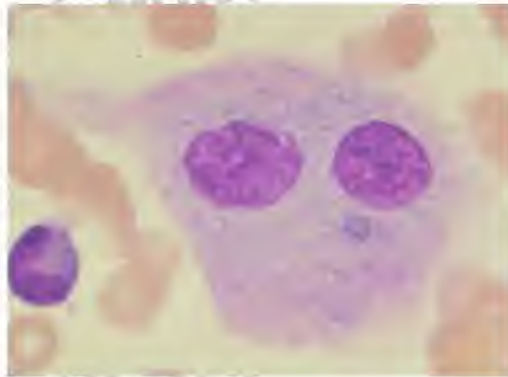
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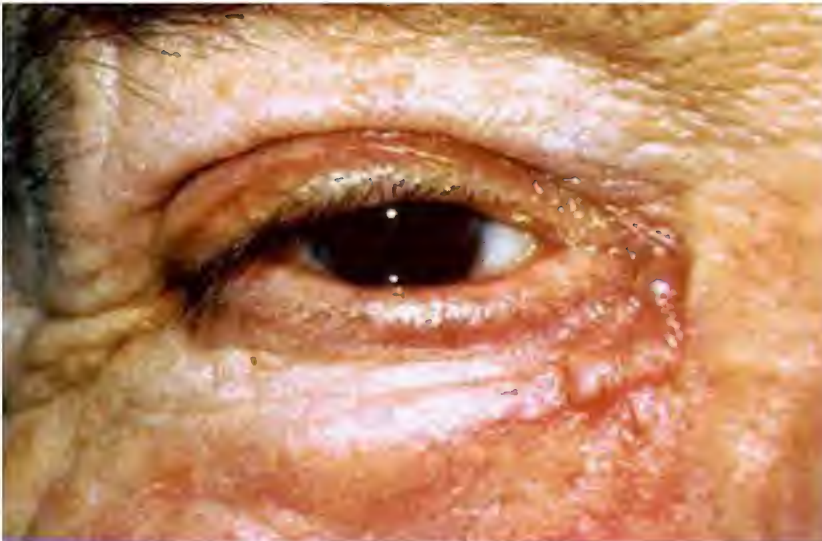
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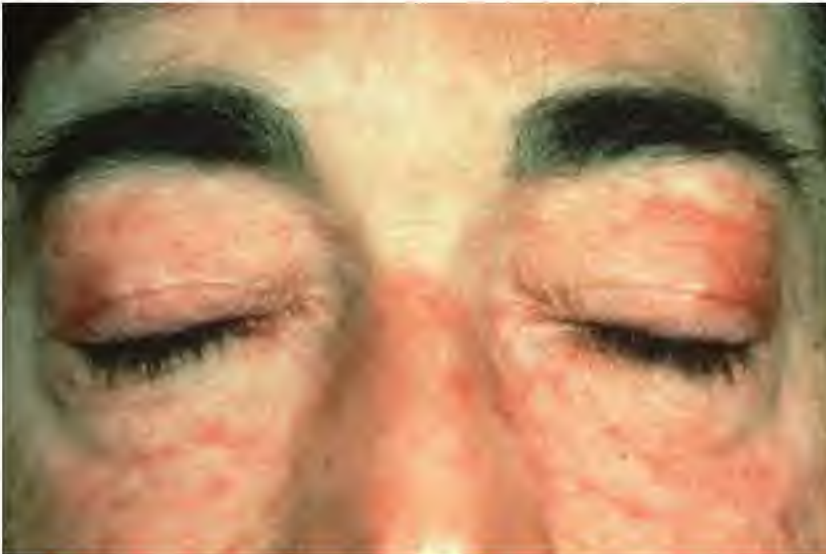
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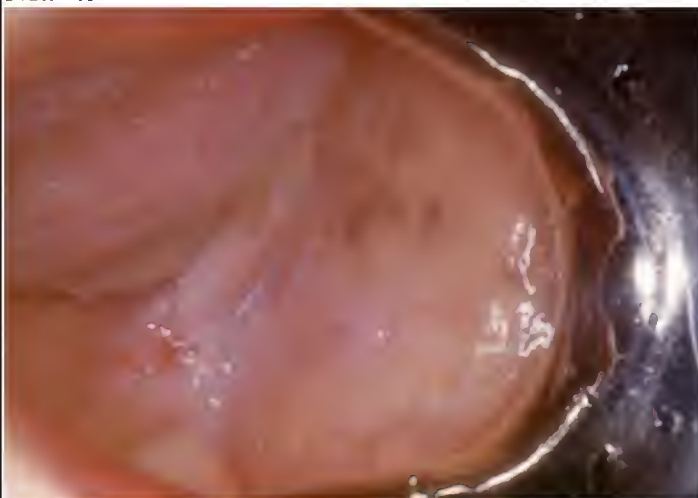
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No.: 63





# ﴿تم بحمدہ تعالیٰ﴾

نسألکم الدعاء بظہر الغیب